amdt a

SEQUENCE LISTING

<110> Wright, David A.
Voytas, Daniel F.

<120> Plant Retroelements and Methods Related Thereto

<130> P-1065A

<140> 09/586,106
<141> 2000-06-02

<150> 60/087,125
<151> 1998-05-29

<150> 09/322,478
<151> 1999-05-28

<160> 169

<170> PatentIn Ver. 2.1

<210> 1
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<212> DNA
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<400> 1
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<210> 2
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<211> 6
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<400> 3
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<210> 4
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant retroelement sequence

<400> 4
Met Ala Ser Arg Lys Arg Lys
1 5

<210> 5
<211> 1263
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 5
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cctccagacc atgatgccat cctttccgct ctgtgtactc caggggacg atttgttctg 480
aatgttgata gtgccccctg gaagctgctg cggaaggatc tgatgacgct cgcgcagaca 540
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<210> 6
<211> 421
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 6
Met Ala Ser Arg Lys Arg Lys Ala Val Pro Thr Pro Gly Glu Ala Ser
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Asn Trp Asp Ser Ser Arg Phe Thr Phe Glu Ile Ala Trp His Arg Tyr
20 25 30

Gln Asp Ser Ile Gln Leu Arg Asn Ile Leu Pro Glu Arg Asn Val Glu

```
         35                  40                  45

Leu Gly Pro Gly Met Phe Asp Glu Phe Leu Gln Glu Leu Gln Arg Leu
     50                  55                  60

Arg Trp Asp Gln Val Leu Thr Arg Leu Pro Glu Lys Trp Ile Asp Val
 65                  70                  75                  80

Ala Leu Val Lys Glu Phe Tyr Ser Asn Leu Tyr Asp Pro Glu Asp His
                 85                  90                  95

Ser Pro Lys Phe Trp Ser Val Arg Gly Gln Val Val Arg Phe Asp Ala
            100                 105                 110

Glu Thr Ile Asn Asp Phe Leu Asp Thr Pro Val Ile Leu Ala Glu Gly
        115                 120                 125

Glu Asp Tyr Pro Ala Tyr Ser Gln Tyr Leu Ser Thr Pro Pro Asp His
    130                 135                 140

Asp Ala Ile Leu Ser Ala Leu Cys Thr Pro Gly Gly Arg Phe Val Leu
145                 150                 155                 160

Asn Val Asp Ser Ala Pro Trp Lys Leu Leu Arg Lys Asp Leu Met Thr
                165                 170                 175

Leu Ala Gln Thr Trp Ser Val Leu Ser Tyr Phe Asn Leu Ala Leu Thr
            180                 185                 190

Phe His Thr Ser Asp Ile Asn Val Asp Arg Ala Arg Leu Asn Tyr Gly
        195                 200                 205

Leu Val Met Lys Met Asp Leu Asp Val Gly Ser Leu Ile Ser Leu Gln
    210                 215                 220

Ile Ser Gln Ile Ala Gln Ser Ile Thr Ser Arg Leu Gly Phe Pro Ala
225                 230                 235                 240

Leu Ile Thr Thr Leu Cys Glu Ile Gln Gly Val Val Ser Asp Thr Leu
                245                 250                 255

Ile Phe Glu Ser Leu Ser Pro Val Ile Asn Leu Ala Tyr Ile Lys Lys
            260                 265                 270

Asn Cys Trp Asn Pro Ala Asp Pro Ser Ile Thr Phe Gln Gly Thr Arg
        275                 280                 285

Arg Thr Arg Thr Arg Ala Ser Ala Ser Ala Ser Glu Ala Pro Leu Pro
    290                 295                 300

Ser Gln His Pro Ser Gln Pro Phe Ser Gln Arg Pro Arg Pro Pro Leu
305                 310                 315                 320

Leu Ser Thr Ser Ala Pro Pro Tyr Met His Gly Gln Met Leu Arg Ser
                325                 330                 335

Leu Tyr Gln Gly Gln Gln Ile Ile Ile Gln Asn Leu Tyr Arg Leu Ser
```

```
            340                 345                 350

Leu His Leu Gln Met Asp Leu Pro Leu Met Thr Pro Glu Ala Tyr Arg
        355                 360                 365

Gln Gln Val Ala Lys Leu Gly Asp Gln Pro Ser Thr Asp Arg Gly Glu
    370                 375                 380

Glu Pro Ser Gly Ala Ala Ala Thr Glu Asp Pro Ala Val Asp Glu Asp
385                 390                 395                 400

Leu Ile Ala Asp Leu Ala Gly Ala Asp Trp Ser Pro Trp Ala Asp Leu
                405                 410                 415

Gly Arg Gly Ser Glx
            420
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<210> 7
<211> 1596
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant retroelement sequence

<400> 7

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tgtcggcgta acaacgctgc aagaagaaga agggagcaag acatagaagg aagtagttac 120
acctcacctc ctccttctcc aaattatgct cagatggacg gggaaccggc acaaagagtc 180
acactagagg acttctctaa taccaccact cctcagttct ttacaagtat cacaaggccg 240
gaagtccaag cagatctcct tactcaaggg aacctcttcc atggtcttcc aaatgaagat 300
ccatatgcgc atctagcctc atacatagag atatgcagca ccgttaaaat cgccggagtt 360
ccaaaagatg cgatactcct taacctcttt tccttttccc tagcaggaga ggcaaaaaga 420
tggttgcact cctttaaagg caatagctta agaacatggg aagaagtagt ggaaaaattc 480
ttaaagaagt atttcccaga gtcaaagacc gtcgaacgaa agatggagat ttcttatttc 540
catcaatttc tggatgaatc ccttagcgaa gcactagacc atttccacgg attgctaaga 600
aaaacaccaa cacacagata cagcgagcca gtacaactaa acatattcat cgatgacttg 660
caactcttaa tcgaaacagc tactagaggg aagatcaagc tgaagactcc cgaagaagcg 720
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gttcccacaa aaagaagcct cttggagctt agcacgcagg acgcaacttt ggtacaaaac 840
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gaacggccca ctagaacttt cggtgctaac atggagagaa gaaccccaag gaaggataaa 1440
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<210> 8
<211> 532
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 8

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Met Arg Gly Arg Thr Ala Ser Gly Asp Val Val Pro Ile Asn Leu Glu
  1               5                  10                  15

Ile Glu Ala Thr Cys Arg Arg Asn Asn Ala Ala Arg Arg Arg Arg Glu
             20                  25                  30

Gln Asp Ile Glu Gly Ser Ser Tyr Thr Ser Pro Pro Pro Ser Pro Asn
         35                  40                  45

Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp
     50                  55                  60

Phe Ser Asn Thr Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro
 65                  70                  75                  80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu
                 85                  90                  95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys
            100                 105                 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn
        115                 120                 125

Leu Phe Ser Phe Ser Leu Ala Gly Glu Ala Lys Arg Trp Leu His Ser
    130                 135                 140

Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe
145                 150                 155                 160

Leu Lys Lys Tyr Phe Pro Glu Ser Lys Thr Val Glu Arg Lys Met Glu
                165                 170                 175

Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu
            180                 185                 190

Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser
        195                 200                 205

Glu Pro Val Gln Leu Asn Ile Phe Ile Asp Asp Leu Gln Leu Leu Ile
    210                 215                 220

Glu Thr Ala Thr Arg Gly Lys Ile Lys Leu Lys Thr Pro Glu Glu Ala
225                 230                 235                 240

Met Glu Leu Val Glu Asn Met Ala Ala Ser Asp Gln Ala Ile Leu His
                245                 250                 255
```

```
Asp His Thr Tyr Val Pro Thr Lys Arg Ser Leu Leu Glu Leu Ser Thr
            260                 265                 270

Gln Asp Ala Thr Leu Val Gln Asn Lys Leu Leu Thr Arg Gln Ile Glu
        275                 280                 285

Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile
    290                 295                 300

Ser Ser Ser His Ser Ser Val Leu Gln Val Glu Glu Cys Pro Thr Cys
305                 310                 315                 320

Arg Gly Thr His Glu Pro Gly Gln Cys Ala Ser Gln Gln Asp Pro Ser
                325                 330                 335

Arg Glu Val Asn Tyr Ile Gly Ile Leu Asn Arg Tyr Gly Phe Gln Gly
            340                 345                 350

Tyr Asn Gln Gly Asn Pro Ser Gly Phe Asn Gln Gly Ala Thr Arg Phe
        355                 360                 365

Asn His Glu Pro Pro Gly Phe Asn Gln Gly Arg Asn Phe Met Gln Gly
    370                 375                 380

Ser Ser Trp Thr Asn Lys Gly Asn Gln Tyr Lys Glu Gln Arg Asn Gln
385                 390                 395                 400

Pro Pro Tyr Gln Pro Pro Tyr Gln His Pro Ser Gln Gly Pro Asn Gln
                405                 410                 415

Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Leu Gln Phe Ile Lys
            420                 425                 430

Glu Thr Arg Ser His Gln Lys Ser Thr Asp Ala Ala Ile Arg Asn Leu
        435                 440                 445

Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr
    450                 455                 460

Arg Thr Phe Gly Ala Asn Met Glu Arg Arg Thr Pro Arg Lys Asp Lys
465                 470                 475                 480

Ala Val Leu Thr Arg Gly Gln Arg Arg Ala Gln Glu Glu Gly Lys Val
                485                 490                 495

Glu Gly Glu Asp Trp Pro Glu Glu Gly Arg Thr Glu Lys Thr Glu Glu
            500                 505                 510

Glu Glu Lys Val Ala Glu Glu Pro Lys Arg Thr Lys Ser Gln Arg Ala
        515                 520                 525

Arg Glu Ala Lys
    530
```

<210> 9

<211> 603
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

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tcatacggga atgtctacat cttggtagct gtggattacg tctccaaatg ggtggaagcc 180
atagccacgc caaaggacga tgccagggta gtgatcaaat ttctgaagaa gaacattttt 240
tcccgttttg gagtcccacg agccttgatt agtgataggg gaacgcactt ctgcaacaat 300
cagttgaaga aagtcctgga gcactataat gtccgacata aggtggccac accttatcac 360
cctcagacaa atggccaagc agaaatttct aacagggagc tcaagcgaat cctggaaaag 420
acagttgcat caacaagaaa ggattggtcc ttgaagctcg atgatgctct ctgggcctat 480
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gac 603

<210> 10
<211> 201
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 10
Cys Asp Lys Cys Gln Arg Thr Gly Gly Ile Ser Arg Arg Asn Glu Met
1 5 10 15

Pro Leu Gln Asn Ile Met Glu Val Glu Ile Phe Asp Cys Trp Gly Ile
20 25 30

Asp Phe Met Gly Pro Phe Pro Ser Ser Tyr Gly Asn Val Tyr Ile Leu
35 40 45

Val Ala Val Asp Tyr Val Ser Lys Trp Val Glu Ala Ile Ala Thr Pro
50 55 60

Lys Asp Asp Ala Arg Val Val Ile Lys Phe Leu Lys Lys Asn Ile Phe
65 70 75 80

Ser Arg Phe Gly Val Pro Arg Ala Leu Ile Ser Asp Arg Gly Thr His
85 90 95

Phe Cys Asn Asn Gln Leu Lys Lys Val Leu Glu His Tyr Asn Val Arg
100 105 110

His Lys Val Ala Thr Pro Tyr His Pro Gln Thr Asn Gly Gln Ala Glu
115 120 125

Ile Ser Asn Arg Glu Leu Lys Arg Ile Leu Glu Lys Thr Val Ala Ser

```
    130                 135                 140

Thr Arg Lys Asp Trp Ser Leu Lys Leu Asp Asp Ala Leu Trp Ala Tyr
145                 150                 155                 160

Arg Thr Ala Phe Lys Thr Pro Ile Gly Leu Ser Pro Phe Gln Leu Val
                165                 170                 175

Tyr Gly Lys Ala Cys His Leu Pro Val Glu Leu Glu Tyr Lys Ala Tyr
            180                 185                 190

Trp Ala Leu Lys Leu Leu Asn Phe Asp
        195                 200
```

<210> 11
<211> 600
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant retroelement sequence

<400> 11
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gttcccaaga aaggtggaat gacagtggta cgagatgaga ggaatgactt gataccaaca 120
cgaactgtca ctggttggcg aatgtgtatc gactatcgca agctgaatga agccacacgg 180
aaggaccatt tccccttacc tttcatggat cagatgctgg agagacttgc agggcaggca 240
tactactgtt tcttggatgg atactcggga tacaaccaga tcgcggtaga ccccagagat 300
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gtggagaaaa gcatcgaggt atttatggac gacttctcgg tttttggacc ctcatttgac 480
agctgtttga ggaacctaga gagggtactt cagaggtgcg aagagactaa cttggtactg 540
aattgggaaa agtgtcattt catggttcga gagggcatag tcctaggcca caagatctca 600

<210> 12
<211> 200
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant retroelement sequence

<400> 12
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Leu Glu Ala Gly Leu Ile Tyr Pro Ile Ser Asp Ser Ala Trp Val Ser
  1               5                  10                  15

Pro Val Gln Val Val Pro Lys Lys Gly Gly Met Thr Val Val Arg Asp
             20                  25                  30

Glu Arg Asn Asp Leu Ile Pro Thr Arg Thr Val Thr Gly Trp Arg Met
         35                  40                  45

Cys Ile Asp Tyr Arg Lys Leu Asn Glu Ala Thr Arg Lys Asp His Phe
```

```
     50                  55                  60

Pro Leu Pro Phe Met Asp Gln Met Leu Glu Arg Leu Ala Gly Gln Ala
 65                  70                  75                  80

Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser Gly Tyr Asn Gln Ile Ala Val
                 85                  90                  95

Asp Pro Arg Asp Gln Glu Lys Thr Ala Phe Thr Cys Pro Phe Gly Val
            100                 105                 110

Phe Ala Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro Ala Thr
        115                 120                 125

Phe Gln Arg Cys Met Leu Ala Ile Phe Ser Asp Met Val Glu Lys Ser
    130                 135                 140

Ile Glu Val Phe Met Asp Asp Phe Ser Val Phe Gly Pro Ser Phe Asp
145                 150                 155                 160

Ser Cys Leu Arg Asn Leu Glu Arg Val Leu Gln Arg Cys Glu Glu Thr
                165                 170                 175

Asn Leu Val Leu Asn Trp Glu Lys Cys His Phe Met Val Arg Glu Gly
            180                 185                 190

Ile Val Leu Gly His Lys Ile Ser
        195                 200
```

<210> 13
<211> 858
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 13

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ccattcgggg aagccttaca gcagatgccc ctctactcca aatttatgaa agacatcctc 180
accaagaagg ggaagtatat tgacaacgag aatattgtgg taggaggcaa ttgcagtgcg 240
ataatacaaa ggattctacc caagaagttt aaagaccccg gaagtgttac catcccgtgc 300
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gagattcccc ttatcttagg cagacccttc atgctgactg ccaactgtgt ggtggatatg 600
gggaaaggga acttagagtt gactattgat aatcagaaga tcacctttga ccttatcaag 660
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<210> 14
<211> 286
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 14

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Lys Glu Glu Pro Leu Ala Leu Pro Gln Asp Leu Pro Tyr Pro Met Ala
  1               5                  10                  15

Pro Thr Lys Lys Asn Lys Glu Arg Tyr Phe Ala Arg Phe Leu Glu Ile
             20                  25                  30

Phe Lys Gly Leu Glu Ile Thr Met Pro Phe Gly Glu Ala Leu Gln Gln
         35                  40                  45

Met Pro Leu Tyr Ser Lys Phe Met Lys Asp Ile Leu Thr Lys Lys Gly
     50                  55                  60

Lys Tyr Ile Asp Asn Glu Asn Ile Val Val Gly Gly Asn Cys Ser Ala
 65                  70                  75                  80

Ile Ile Gln Arg Ile Leu Pro Lys Lys Phe Lys Asp Pro Gly Ser Val
                 85                  90                  95

Thr Ile Pro Cys Thr Ile Gly Lys Glu Ala Val Asn Lys Ala Leu Ile
            100                 105                 110

Asp Leu Gly Ala Ser Ile Asn Leu Met Pro Leu Ser Met Cys Lys Arg
        115                 120                 125

Ile Gly Asn Leu Lys Ile Asp Pro Thr Lys Met Thr Leu Gln Leu Ala
    130                 135                 140

Asp Arg Ser Ile Thr Arg Pro Tyr Gly Val Val Glu Asp Val Leu Val
145                 150                 155                 160

Lys Val Arg His Phe Thr Phe Pro Val Asp Phe Val Ile Met Asp Ile
                165                 170                 175

Glu Glu Asp Thr Glu Ile Pro Leu Ile Leu Gly Arg Pro Phe Met Leu
            180                 185                 190

Thr Ala Asn Cys Val Val Asp Met Gly Lys Gly Asn Leu Glu Leu Thr
        195                 200                 205

Ile Asp Asn Gln Lys Ile Thr Phe Asp Leu Ile Lys Ala Met Lys Tyr
    210                 215                 220

Pro Gln Glu Gly Trp Lys Cys Phe Arg Ile Glu Glu Ile Asp Glu Glu
225                 230                 235                 240

Asp Val Ser Phe Leu Glu Thr Pro Lys Thr Ser Leu Glu Lys Ala Met
                245                 250                 255
```

```
Val Asn His Leu Asp Cys Leu Thr Ser Glu Glu Glu Glu Asp Leu Lys
            260                 265                 270

Ala Cys Leu Glu Asn Leu Asp Gln Glu Asp Ser Ile Pro Glu
        275                 280                 285
```

<210> 15
<211> 192
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant retroelement sequence

<400> 15
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gacaaggtat ttcacgccat ctattatgct agcaaggtcc tgaatgaagc acagttgaat 120
tatgcaacca cagaaaagga gatgctagcc attgtctttg ccttggagaa gttcaggtca 180
tacttgatag gg 192

<210> 16
<211> 64
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant retroelement sequence

<400> 16
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Phe Glu Leu Met Cys Asp Ala Ser Asp Tyr Ala Val Gly Ala Val Leu
  1               5                  10                  15

Gly Gln Arg Lys Asp Lys Val Phe His Ala Ile Tyr Tyr Ala Ser Lys
            20                  25                  30

Val Leu Asn Glu Ala Gln Leu Asn Tyr Ala Thr Thr Glu Lys Glu Met
        35                  40                  45

Leu Ala Ile Val Phe Ala Leu Glu Lys Phe Arg Ser Tyr Leu Ile Gly
     50                  55                  60
```

<210> 17
<211> 12286
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant

retroelement sequence

<400> 17
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ttaattattt agcagttatt tgtgattaaa agttagaaaa gcaattaagt tgaatttttg 120
gccatagata tgaaaactga aggtacaaca agcaaaaggc agcagaaagt gaagaaaaag 180
aataaaatct gaagcagacc cagcccaaca cgcgccctta gcgcgcgtca cgcgctaagc 240
ttgcaaggca gcacaggcac taagcgaggc gttaagcacg aagatgcagg attcgttacg 300
tgcgctaagc gcgaggcaca cgctaagcgc gcgatccaac agaagcacac gctaagcctg 360
cagcatgcgc taagcgcgcc tacgaaggcc caaagcccat ttctacacct ataaatagag 420
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aggttttatg ttctaattct ttccttttta tcttgcattt atgtcttaaa tttctgttgg 720
gttttattcg ctcgggagag ggtatttcct aataagggtt taagaagtaa tgcatgcatc 780
agttttaggg gttatacgct tggtaaaggg taacacctaa tagaacaaat taagaaaagg 840
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tgggtagaac taattcaact gcattggtaa tgaacatcat aaattcattc atcgtaggcc 1080
aattaggttt gtccggtctt ggcattttca tcaattgtct tcctaaatta tttgatctaa 1140
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gaagagtatt caataaagtg caataaaatc cctatggaaa cgatactcgg acttccgaga 1260
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Gln Asp Ile Glu Gly Ser Ser Tyr Thr Ser Pro Pro Pro Ser Pro Asn
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Phe Ser Asn Thr Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro
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Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu
                 85                  90                  95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys
            100                 105                 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn
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Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe
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Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu
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Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser
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Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile
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tatgccacca ctgaaaaaga attacttgcg atagtgtatg cacttgaaaa gtttaggtct 180
tatcttatag gg 192

<210> 31
<211> 581
<212> DNA
<213> Pisum sativum

<400> 31
tgtgatagtt gccagagaag cggtgggatt ggtaagagag acgagatgtc tctccaaaac 60
atccaagagg tcgaagtatt tgattgttgg ggcatcgatt ttgtaggacc attccccccc 120
cttatggtaa cgagtatatg cttgtcgcag ttgaggcgat tgcctcacct cgggcggatg 180
cgaaaacggt aataattttt ttgaagaaaa acatattttc ccgtttcgga acccccgag 240
tgttgataag tgacggaggg tcacactttt gtaatgcacc gttggaaagc attttaaaac 300
attacggtgt atcacacaga gtggcaactc cgtatcaccc acaggctaat ggacaagccg 360
aggtctctaa tcgtgagatt aagagaattc tcgaaaaaac tgtgtcaaat tcgaaaaaag 420
agtggtcaca aaaattggat gaagcgttat gggcataccg taccgccttt aaagctccaa 480
ttgggctcac tccttttcaa ttggtgtttg gtaaaacttg ccatttgccg gtcgaattgg 540
agcacaaagc cttgtgggct ttgaaaatta ataattttga a 581

<210> 32
<211> 1362
<212> DNA

<213> Glycine max

<400> 32
atggcctcct gtaaacaccg agctgtgccc acacccgggg aagcgtccaa ctgggactct 60
tcacgtttca ctttcgagat tgcttggcac agataccagg atagcattca gctccggaac 120
atccttccag agaggaatgt agagcttgga ccagggatgt ttgatgagtt cctgcaggaa 180
ctccagaggc tcagatggga ccaggttctg acccgacttc cagagaagtg gattgatgtt 240
gctctggtga aggagtttta ctccaaccta tatgatccag aggaccacag tccgaagttt 300
tggagtgttc gaggacaggt tgtgagattt gatgctgaga cgattaatga tttcctcgac 360
accccggtca tcttggcaga gggagaggat tatccagcct actctcagta cctcagcact 420
cctccagacc atgatgccat cctttccgct ctgtgtactc caggggacg atttgttctg 480
aatgttgata gtgccccctg gaagctgctg cggaaggatc tgatgacgct cgcgcagaca 540
tggagtgtgc tctcttattt taaccttgca ctgacttttc acacttctga tattaatgtt 600
gacagggccc gactcaatta tggcttggtg atgaagatgg acctggacgt gggcagcctc 660
atttctcttt agatcagtca gatcgcccag tccatcactt ccaggcttgg gttcccagcg 720
ttgatcacaa cactgtgtga gattcagggg gttgtctctg ataccctgat ttttgagtca 780
ctcagtcctg tgatcaacct tgcctacatt aagaagaact gctggaaccc tgccgatcca 840
tctatcacat ttcaggggac ccgccgcacg cgcaccagag cttcggcgtc ggcatctgag 900
gctcctcttc catcccagca tccttctcag ccttttttccc agtgaccacg gcctccactt 960
ctatccacct cagcacctcc atacatgcat ggacagatgc tcaggtcctt gtaccagggt 1020
cagcagatca tcattcagaa cctgtatcga ttgtccctac atttgcagat ggatctgcca 1080
ctcatgactc cggaggccta tcgtcagcag gtcgcctagc taggagacca gccctccact 1140
gacaggggggg aagagccttc tggagccgct gctactgagg atcctgccgt tgatgaagac 1200
ctcatagctg acttggctgg cgctgattgg agcccatggg cagacttggg cagaggcagc 1260
tgatcttatg ctttaatgtt ttcttttata ttatgtttgt gttctctttt atgttttatg 1320
ttatgttttt atgtagtctg tttggtaatt aaaaagaggt ag 1362

<210> 33
<211> 192
<212> DNA
<213> Glycine max

<400> 33
tttgagttga tgtgtgacgc gagcgattat gctataggtg cagtgcttgg acaaaggaag 60
ggcaaaattt ttcatgctat ctactacgcc agcaaagttt taaatgatgc acaggttaac 120
tatgctacca cagaaaaaga aatgttggca attgtttatg cacttgaaaa gttcaaatct 180
tatttggtag gc 192

<210> 34
<211> 597
<212> DNA
<213> Glycine max

<400> 34
ttggaggttg ggctcatata ccccatctct gacaacgctt gggtaagccc agtacaggtg 60
gttcccaaga aaggtggaat gacagtggta caaaatgaga ggaatgactt gataccaaca 120
cgaacagtca ctggctggcg aatgtgtatt gactatcaca agctgaatga agctacacgg 180
aaggaccatt tccccttacc tttcatggat cagatgctgg agagacttgc agggcaggca 240
tactactgtt tcttggatgg atactcggga tacaaccaga tcgcggtaga ccccatagat 300
caggagaaga cggtctttac atgccccttt ggcgtctttg cttacagaag gatgtcattc 360
gggttatgta atgtaccagc cacatttcag aggtgcatgc tgaccatttt ttcagacatg 420
gtggagaaaa gcatcgaggt atttatggac gacttctcgg tttttggacc ctcatttgac 480
agctgtttga ggaacctaga aatggtactt cagaggtgcg tagagactaa cttggtactg 540
aattgggaaa agtgtcattt tatggttcga gagggcatag tcctaggcca caagatc 597

<210> 35
<211> 603
<212> DNA
<213> Glycine max

<400> 35
tgtgataaat gtcagagaac aaggggggata tctcgaagaa atgagatgcc tttgcagaat 60
atcatggagg tagagatctt tgatagttgg ggcatagact tcatggggcc tcttccttca 120
tcatacagga atgtctacat cttggtagct gtggattacg tctccaaatg ggtggaagcc 180
atagccacgc tgaaggacga tgccagggta gtgatcaaat ttctgaagaa gaacattttt 240
tcccatttcg gagtcccacg agccttgatt agtgatgggg gaacgcactt ctgcaacaat 300
cagttgaaga aagtcctgga gcactataat gtccgacaca aggtggccac accttatcac 360
actcagacga atggccaagc agaaatttct aacagggagc tcaagcgaat cctggaaaag 420
acagttgcat catcaagaaa ggattgggcc ttgaagctcg atgatactct ctgggcctat 480
aggacagcgt tcaagactcc catcggctta tcaccatttc agctagtata tgggaaggca 540
tgtcatttac cagtagagct ggagcacaag gcatattggg ctctcaagtt gctcaacttt 600
gac 603

<210> 36
<211> 150
<212> DNA
<213> Glycine max

<400> 36
cctaaaatac tacaacgaca tgattggtgt tttaggataa ttgactgaaa aacctattat 60
caatttggcg ccgttgccaa ttgggtgttt gtttgttaca tttgagattt cagacttgct 120
tagatcaagt tctttttcaa ttttcttttt 150

<210> 37
<211> 11
<212> DNA
<213> Glycine max

<400> 37
tggcgccgtt g 11

<210> 38
<211> 15
<212> DNA
<213> Glycine max

<400> 38
tggcgccgtt gccgg 15

<210> 39
<211> 27
<212> DNA
<213> Glycine max

<400> 39
tttttggcgc cgttgtcggg gattttg 27

<210> 40
<211> 9
<212> DNA
<213> Glycine max

<400> 40
tttgggggga 9

<210> 41
<211> 16
<212> DNA
<213> Glycine max

<400> 41
tttaatttgg gggatt 16

<210> 42
<211> 775
<212> DNA
<213> Nicotiana tabacum

<400> 42
gtgcgtaaag aggtttttaa actggagatt atcaagtgat tggatgccgg ggttatctac 60
cccatttacg atagttcatg aacttctccg gtgcaatgtg tcccaaagaa ggtggcatga 120
cggtggtcac caatgagaag aatgagttga ttcctacaag aatggtgacc ggttggagag 180
tgtgcatgga ctatcgcaag ctcaacaaac tcacaaggaa ggatcatttc ccatttccat 240
tccttgacca aatgcttgat aggttggcat gtcgtgcttt ctattgcttt ctagatgtat 300
agtcgggcta tagccaaatc tttattgctc cgtaggatca cgagaaaata cctttacatg 360
tccctatggt acttttgcct acaagcggat gccatttggt ttgtgtaatg cactagcgaa 420
cttttatagg tgtatgatgg ctatcttcac ggacatggtg aaggactacc ttaaagtttt 480
catggatgac ttctcgatgg ttggggattc ctttgatgat tgcttggaaa atttggataa 540
agtattggca agatatgaag aaacgaattt ggtactaaat tgggagaagt gtcatttcat 600
gatcgaggaa ggcattgttc ttggccacaa gatctcaaat aatggcattg aagtcgacaa 660
ggcaaagatt aaggtgattt ctaaacttac acctccaact ttggtgaaag gcgtgcggag 720
tttcttaggc cacgcggggt tttaccaatt cttcataaaa gatttcacaa aggtt 775

<210> 43
<211> 259
<212> PRT
<213> Nicotiana tabacum

<400> 43
Val Arg Lys Glu Val Phe Lys Leu Glu Ile Ile Lys Glx Leu Asp Ala
1 5 10 15

Gly Val Ile Tyr Pro Ile Tyr Asp Ser Ser Glx Thr Ser Pro Val Gln
20 25 30

Cys Val Pro Lys Lys Gly Gly Met Thr Val Val Thr Asn Glu Lys Asn
35 40 45

Glu Leu Ile Pro Thr Arg Met Val Thr Gly Trp Arg Val Cys Met Asp
50 55 60

```
Tyr Arg Lys Leu Asn Lys Leu Thr Arg Lys Asp His Phe Pro Phe Pro
 65                  70                  75                  80

Phe Leu Asp Gln Met Leu Asp Arg Leu Ala Cys Arg Ala Phe Tyr Cys
                85                  90                  95

Phe Leu Asp Val Glx Ser Gly Tyr Ser Gln Ile Phe Ile Ala Pro Glx
            100                 105                 110

Asp His Glu Lys Thr Thr Phe Thr Cys Pro Tyr Gly Thr Phe Ala Tyr
        115                 120                 125

Lys Arg Met Pro Phe Gly Leu Cys Asn Ala Leu Ala Asn Phe Tyr Arg
    130                 135                 140

Cys Met Met Ala Ile Phe Thr Asp Met Val Lys Asp Tyr Leu Lys Val
145                 150                 155                 160

Phe Met Asp Asp Phe Ser Met Val Gly Asp Ser Phe Asp Asp Cys Leu
                165                 170                 175

Glu Asn Leu Asp Lys Val Leu Ala Arg Tyr Glu Glu Thr Asn Leu Val
            180                 185                 190

Leu Asn Trp Glu Lys Cys His Phe Met Ile Glu Glu Gly Ile Val Leu
        195                 200                 205

Gly His Lys Ile Ser Asn Asn Gly Ile Glu Val Asp Lys Ala Lys Ile
    210                 215                 220

Lys Val Ile Ser Lys Leu Thr Pro Pro Thr Leu Val Lys Gly Val Arg
225                 230                 235                 240

Ser Phe Leu Gly His Ala Gly Phe Tyr Gln Phe Phe Ile Lys Asp Phe
                245                 250                 255

Thr Lys Val
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<210> 44
<211> 761
<212> DNA
<213> Nicotiana tabacum

<400> 44
gtgcgtaaag aggtggtcaa gctgttggat gtcggggttg tgtaccccat ctctgatagc 60
tcttggactt cgccggtgca atgtgtacca aagaaggttg gcatgactgt ggtgaaaaat 120
tccaaaaatg agttgattcc gacaagaacc atcaccggtt ggagggtatg catggactac 180
cgcaagttga ataaagtgac ctgcaaggat cactttcctt tgccatttct ggatcagatg 240
ctagatcgac ttgctgggcg tgccttctat tgcttcttgg atgaatattc tgggtataac 300
caaatcttga ttgctccgga agatccggaa aagaccacat tcacttgtcc gtatggcaca 360
tttgttttct ctaggatgcc ttttaggttg tgtaatgcac cagctacatt tcagcggtgt 420
atgatggcca ttttctccta tatggtgaaa gacatttttg aggtgttcat ggacgatttt 480
agtgttgtgg ggcactcatt tgatgaatgc ttgaagaatc ttgatagggt gttggcccat 540
tgtgaagaaa ccaatcttgt cctcaattgg gagaaatgcc actttatggt agaagaagga 600

atcaatctct ggcataaaat ttcaaaacat ggcattgagg tggataaaca aagatagatg 660
tgatttcaag gctccctccc cctacatccg tcaagggagt ccgatgtttt cttgggcatg 720
cggggttcta ttggagattc ataaaagact tctccaaggt t 761

<210> 45
<211> 254
<212> PRT
<213> Nicotiana tabacum

<400> 45
Val Arg Lys Glu Val Val Lys Leu Leu Asp Val Gly Val Val Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ser Trp Thr Ser Pro Val Gln Cys Val Pro Lys Lys
20 25 30

Val Gly Met Thr Val Val Lys Asn Ser Lys Asn Glu Leu Ile Pro Thr
35 40 45

Arg Thr Ile Thr Gly Trp Arg Val Cys Met Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Val Thr Cys Lys Asp His Phe Pro Leu Pro Phe Leu Asp Gln Met
65 70 75 80

Leu Asp Arg Leu Ala Gly Arg Ala Phe Tyr Cys Phe Leu Asp Glu Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Leu Ile Ala Pro Glu Asp Pro Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Phe Val Phe Ser Arg Met Pro Phe
115 120 125

Arg Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Ser Tyr Met Val Lys Asp Ile Phe Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Val Gly His Ser Phe Asp Glu Cys Leu Lys Asn Leu Asp Arg
165 170 175

Val Leu Ala His Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Glu Glu Gly Ile Asn Leu Trp His Lys Ile Ser
195 200 205

Lys His Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Ser Arg
210 215 220

Leu Pro Pro Pro Thr Ser Val Lys Gly Val Arg Cys Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Trp Arg Phe Ile Lys Asp Phe Ser Lys Val

245 250

<210> 46
<211> 762
<212> DNA
<213> Nicotiana tabacum

<400> 46
gtgcgtaagg aggtgtttaa gttgttggat gttggggttg tgtaccccat ctctgatagc 60
tcttgcattt cgccggtgca atgtgtaccg aagaagggtg gcatgaccgt ggttgcaaat 120
tcgcaaaatg ggttgattcc taccaggatc gtcaccgggt ggaaggtatg catggattac 180
cgaaagttga ataaagtgac ccgcaaggat cactttccat tgccttttct tgatcagatg 240
ttagatcgac ttgctgggcg tgccttctac tgtttcttgg atgggtattc tggatacaac 300
caaatcttca ttactccgga agatcaggag aagacaacat tcacttgtcc atatggcacc 360
tttgcttttt ctaggatgcc ttttgggttg tgtaatgcac cgactacatt ctagcggtat 420
atgatggcca ttttcactga tatggtggaa gatattttgg aggtgttcat ggacgacttt 480
agtgttgtgg gtgattcatt tgatgaatgt ttgaataatc ttgatagagt gttggcccat 540
tgtaaagaaa ccaatcttgt tcttaattgg gagaaatgcc acttcatggt tgaggagggc 600
atagttcttg ggcataaaat tttaaagcat ggtatagagg tggacaaagc aaaaattgat 660
gtgatttcaa ggctccctcc ccctacttct gtcaagggag tgagaagttt tcttaggcat 720
gcggggttct accggagatt catcaaagat ttcaccaaag tt 762

<210> 47
<211> 254
<212> PRT
<213> Nicotiana tabacum

<400> 47
Val Arg Lys Glu Val Phe Lys Leu Leu Asp Val Gly Val Val Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ser Cys Ile Ser Pro Val Gln Cys Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Val Ala Asn Ser Gln Asn Gly Leu Ile Pro Thr
35 40 45

Arg Ile Val Thr Gly Trp Lys Val Cys Met Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Leu Asp Gln Met
65 70 75 80

Leu Asp Arg Leu Ala Gly Arg Ala Phe Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Phe Ile Thr Pro Glu Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Phe Ala Phe Ser Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Glx Arg Tyr Met Met Ala Ile
130 135 140

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Phe Thr Asp Met Val Glu Asp Ile Leu Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Val Gly Asp Ser Phe Asp Glu Cys Leu Asn Asn Leu Asp Arg
                165                 170                 175

Val Leu Ala His Cys Lys Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Glu Glu Gly Ile Val Leu Gly His Lys Ile Leu
        195                 200                 205

Lys His Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Ser Arg
    210                 215                 220

Leu Pro Pro Pro Thr Ser Val Lys Gly Val Arg Ser Phe Leu Arg His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
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<210> 48
<211> 760
<212> DNA
<213> Nicotiana tabacum

<400> 48
gcggaaggag gtcgtcaagc tgttggatgt cggtgttgtg taccccatat ttgatagctc 60
ttggactttg ccggtgcaat atgtgccgaa gaagggtggt atgaccgtgg ttaccaatgt 120
aaaaaatgag ttgattccta ccaggactgt caccgggtgg agggtgtgca tggattacca 180
caaattgaat aaagtgaccc gcaaggatca ctttccatta ccttttcttg atcagatgtt 240
agacagactt gctgggtgtg ccttctactg tttcttggat gggtattctg ggtgcaacaa 300
aattttgatt gcaccaaaag atcaggagaa gaccaccttt acttgtacgt atggtacctt 360
tgtcttttct aggatgtcat ttgggttgtg taatgcaccg actacattct agaggtgtat 420
gatggccata tttacctaca tggtggagga cattttggag gtgtttatgg atgacttcag 480
tgttgttggt gactagtttg atgaatgttt gaaaaatctt gatagagtgt tggcccgttg 540
tgaagaagcc aaccttgtgc ttaattggga gaaatgccac ttcatggttg aggagggcat 600
agtccttagc cataaaattt caaagcatgg tatagaggtg gacaaagcaa aaattgaagt 660
gatttcaagg ctccttcccc ctacttctgt caagggagtt agaagttttc ttgggcatgc 720
ggggttctac tggagattca tcaaagactt cacgaaggtt   760

<210> 49
<211> 253
<212> PRT
<213> Nicotiana tabacum

<400> 49
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Arg Lys Glu Val Val Lys Leu Leu Asp Val Gly Val Val Tyr Pro Ile
  1               5                  10                  15

Phe Asp Ser Ser Trp Thr Leu Pro Val Gln Tyr Val Pro Lys Lys Gly
             20                  25                  30

Gly Met Thr Val Val Thr Asn Val Lys Asn Glu Leu Ile Pro Thr Arg
         35                  40                  45
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Thr Val Thr Gly Trp Arg Val Cys Met Asp Tyr His Lys Leu Asn Lys
     50                  55                  60

Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Leu Asp Gln Met Leu
 65                  70                  75                  80

Asp Arg Leu Ala Gly Cys Ala Phe Tyr Cys Phe Leu Asp Gly Tyr Ser
                 85                  90                  95

Gly Cys Asn Lys Ile Leu Ile Ala Pro Lys Asp Gln Glu Lys Thr Thr
            100                 105                 110

Phe Thr Cys Thr Tyr Gly Thr Phe Val Phe Ser Arg Met Ser Phe Gly
        115                 120                 125

Leu Cys Asn Ala Pro Thr Thr Phe Glx Arg Cys Met Met Ala Ile Phe
    130                 135                 140

Thr Tyr Met Val Glu Asp Ile Leu Glu Val Phe Met Asp Asp Phe Ser
145                 150                 155                 160

Val Val Gly Asp Glx Phe Asp Glu Cys Leu Lys Asn Leu Asp Arg Val
                165                 170                 175

Leu Ala Arg Cys Glu Glu Ala Asn Leu Val Leu Asn Trp Glu Lys Cys
            180                 185                 190

His Phe Met Val Glu Glu Gly Ile Val Leu Ser His Lys Ile Ser Lys
        195                 200                 205

His Gly Ile Glu Val Asp Lys Ala Lys Ile Glu Val Ile Ser Arg Leu
    210                 215                 220

Leu Pro Pro Thr Ser Val Lys Gly Val Arg Ser Phe Leu Gly His Ala
225                 230                 235                 240

Gly Phe Tyr Trp Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 50
<211> 762
<212> DNA
<213> Oryza sativa

<400> 50
gtgcgtaagg aggtgtttaa gttcctgtat gccaggatta tttatctcgt accatacagc 60
gagtgggtta gcccagttca ggtcgtgcca aagaagggag gaatgacggc cgttgcaaat 120
gctcaaaatg aactaatccc gcaacgaacc gtaaccggat ggagaatgtg catcgattac 180
aggaaactta acaaggctac aaaaaaggat catttcccgc tacccttcat tgatgaaatg 240
ttggaacggc tggcaaatca ttccttcttc tgtttccttg atgggtattc aggatatcat 300
caaattccca tccatccgga ggaccagagt aagactacgt tcacatgtcc atatggcacc 360
tatgcgtatc gtaggatgcc ctttggactg tgcaacactc ctgcatcttt ccaaaggtgt 420
atgatgtcta ttttctcgga catgatcgag gatatcatgg aagtcttcat ggatgacttc 480
tcggtctatg gaaagacttt gggtcattgt ctgcagaatc tagacaaagt cttacaacga 540
tgccaagaaa aggacctagt gcttaactgg gaaaagtgcc atttcatggt ctgtgaaggg 600

atagttcttg ggcatcgagt gtccgaacga ggagtcgaag ttgatcgtgc taaaattgat 660
gtgatagatc agcttcctcc acccgtgaac atcaaaggaa tccgcagctt ctttggtcac 720
gctggctttt atagaaggtt catcaaggac ttcacaaaag tt 762

<210> 51
<211> 254
<212> PRT
<213> Oryza sativa

<400> 51
Val Arg Lys Glu Val Phe Lys Phe Leu Tyr Ala Arg Ile Ile Tyr Leu
1 5 10 15

Val Pro Tyr Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Ala Val Ala Asn Ala Gln Asn Glu Leu Ile Pro Gln
35 40 45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr His Gln Ile Pro Ile His Pro Glu Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Thr Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
130 135 140

Phe Ser Asp Met Ile Glu Asp Ile Met Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Lys Thr Leu Gly His Cys Leu Gln Asn Leu Asp Lys
165 170 175

Val Leu Gln Arg Cys Gln Glu Lys Asp Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Cys Glu Gly Ile Val Leu Gly His Arg Val Ser
195 200 205

Glu Arg Gly Val Glu Val Asp Arg Ala Lys Ile Asp Val Ile Asp Gln
210 215 220

Leu Pro Pro Pro Val Asn Ile Lys Gly Ile Arg Ser Phe Phe Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val

245 250

<210> 52
<211> 761
<212> DNA
<213> Oryza sativa

<400> 52
gtgcgcaagg aggttttgaa attgctgcat gccaggatta tctatcccgt accatacagt 60
gagagggtta gcccagtcca ggttgtgcca aagaagggag gaatggcggt cgttgcaaat 120
gctcagaatg aactaattac gcaacaaacc gtaaccggat ggaggatgtg tatcgattac 180
aggaaactca acaaggctac aaaaaaggat catttcccgc tacccttcat tgttgaaatg 240
ttggaacggc tggcaaatca ttccttcttt tgtttccttg atggatattt cggatatcat 300
caaattccca tccatccgga ggactagagt aagactacgt tcacatgtcc atatggcacc 360
tatgcgtatc ataggatgtc ctttggactg tgcaacgctc ctgcatcttt ccaaggtgta 420
tgatgtctat tttctcggac atgatcgagg atatcatgga agtcttcatg gatgacttct 480
cggtctatgg aaagactttc ggtcattgtc tgcaaaatct agacaaagtc ttacaacgat 540
gccaagaaaa ggacctggtg cttaactggg aaaagtgaca tttcatggtc cgtgaaggga 600
tagttcttgg gcatcgagtg ttcgaacaag gaatcgaagt tgatcatgct aaaattgatg 660
tgatagatca gcttcctcct cccgtgaaca tcaaaggtat ccgcagcttc ttgggtcatg 720
tcggctttta tagaaggttc atcaaggact tcactaaagt t 761

<210> 53
<211> 254
<212> PRT
<213> Oryza sativa

<400> 53
Val Arg Lys Glu Val Leu Lys Leu Leu His Ala Arg Ile Ile Tyr Pro
1 5 10 15

Val Pro Tyr Ser Glu Arg Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Ala Val Val Ala Asn Ala Gln Asn Glu Leu Ile Thr Gln
35 40 45

Gln Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Phe Pro Leu Pro Phe Ile Val Glu Met
65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Phe Gly Tyr His Gln Ile Pro Ile His Pro Glu Asp Glx Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr His Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
130 135 140

```
Phe Ser Asp Met Ile Glu Asp Ile Met Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Tyr Gly Lys Thr Phe Gly His Cys Leu Gln Asn Leu Asp Lys
                165                 170                 175

Val Leu Gln Arg Cys Gln Glu Lys Asp Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Glx His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Arg Val Phe
        195                 200                 205

Glu Gln Gly Ile Glu Val Asp His Ala Lys Ile Asp Val Ile Asp Gln
    210                 215                 220

Leu Pro Pro Pro Val Asn Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 54
<211> 762
<212> DNA
<213> Oryza sativa

<400> 54
gtgcggaaag aggtttttaa gctcctgcat gccgggatta tttataccgt tccatgcagt 60
gagtgggtca gcacagtcca ggttgggccg aagatgggat gaatgacggt cgttgcaaat 120
gctcaaaata aacttatccc gcaaccaacc ataaccggat ggaggatgtg catagactac 180
aggaaactca acaaggctac aaaagaggat cattttccgc taccttcat tgatgaaatg 240
ttggaacgga tgacaaatca ttccttcttc tgtttccttg atgggtattc cggatatcat 300
caaattccca tccgtccaga ggaccagagt aagactacgt tcacatgtcc atatggcacc 360
tatgcgtatc gtaggatgtc cttcggactg tgcaacgctc ctgcatcttt ccaaaggtgt 420
atgttgtcta ttttctcgga catgatcgaa gatatcatga aagtcttcat ggatgacttc 480
tcagtttatg gaaagacttt cggtcattgt ctgtagaatc tagacaaagt cttacaacga 540
tgccaagaaa atgacctagt gtttaattgg gaaaagtgcc attttatggt ccgtgaaggg 600
atagttcttg ggcatcgagt atccgaatga ggaatcgaag ttgatcgtgc taaaatcgat 660
gttatagatc aaattcgtcc tcctgcgaat atcaaaggaa tccgcagctt cttgggacat 720
gccggctttt atagaaggtt cctcaaggac ttcacaaaag tt   762

<210> 55
<211> 254
<212> PRT
<213> Oryza sativa

<400> 55
```
Val Arg Lys Glu Val Phe Lys Leu Leu His Ala Gly Ile Ile Tyr Thr
  1               5                  10                  15

Val Pro Cys Ser Glu Trp Val Ser Thr Val Gln Val Gly Pro Lys Met
            20                  25                  30

Gly Glx Met Thr Val Val Ala Asn Ala Gln Asn Lys Leu Ile Pro Gln
        35                  40                  45
```

```
Pro Thr Ile Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
     50                  55                  60

Lys Ala Thr Lys Glu Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
 65                  70                  75                  80

Leu Glu Arg Met Thr Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
                 85                  90                  95

Ser Gly Tyr His Gln Ile Pro Ile Arg Pro Glu Asp Gln Ser Lys Thr
            100                 105                 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Leu Ser Ile
    130                 135                 140

Phe Ser Asp Met Ile Glu Asp Ile Met Lys Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Tyr Gly Lys Thr Phe Gly His Cys Leu Glx Asn Leu Asp Lys
                165                 170                 175

Val Leu Gln Arg Cys Gln Glu Asn Asp Leu Val Phe Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Arg Val Ser
        195                 200                 205

Glu Glx Gly Ile Glu Val Asp Arg Ala Lys Ile Asp Val Ile Asp Gln
    210                 215                 220

Ile Arg Pro Pro Ala Asn Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Leu Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 56
<211> 762
<212> DNA
<213> Oryza sativa

<400> 56
gtgcgtaagg aggtcttgaa gctcttgcat gccgagatta tttatcccgt accatataga 60
gagtgggtta gcccggtcta ggttatgccg aagaagggac gaatgacggt cattgcaaat 120
gctcaaaatg aacttattcc gcaacgaaca gtaaccggat ggaggatgtg catagattac 180
atgaaactta acaaggctac gaaaaaggat catttcccac tacccttcat tgatgaaatg 240
ttggaacggc tggcaaatca ttctttcttc cgtttccttg atgggtattc taggtatgat 300
caaattccca tccatccgga ggaccaaagt aagactacgt tcacatgttc gtatgatacc 360
tatgcttatc gtaggatgtc cttcggactg tgcaacgctc ctgcatcttt ccaaaggtgt 420
atgatgtcta ttttctccga catgattaag gacattatgg aagtcttcat gcatgacttc 480
tctatttatg gaaagacctc cggtcattgt ctacaaaatt tagacaaaat tttgcaacga 540
tgccaagaga aggacctggt acttaattgg gaaaagtgtc atttcatggt ccgtgaaggg 600

atagttctta gtcatcgagt gtccgaataa ggaatcgaag ttgatcgtgc taaaaactat 660
gtaatagatt agcttccttc tcctgtgaac attaagggga tccgcaattt tttgggacat 720
gctggctttt atagaaggtt catcaaagac ttcacaaagg tt 762

<210> 57
<211> 254
<212> PRT
<213> Oryza sativa

<400> 57
Val Arg Lys Glu Val Leu Lys Leu Leu His Ala Glu Ile Ile Tyr Pro
1 5 10 15

Val Pro Tyr Arg Glu Trp Val Ser Pro Val Glx Val Met Pro Lys Lys
20 25 30

Gly Arg Met Thr Val Ile Ala Asn Ala Gln Asn Glu Leu Ile Pro Gln
35 40 45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Met Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Arg Phe Leu Asp Gly Tyr
85 90 95

Ser Arg Tyr Asp Gln Ile Pro Ile His Pro Glu Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Ser Tyr Asp Thr Tyr Ala Tyr Arg Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
130 135 140

Phe Ser Asp Met Ile Lys Asp Ile Met Glu Val Phe Met His Asp Phe
145 150 155 160

Ser Ile Tyr Gly Lys Thr Ser Gly His Cys Leu Gln Asn Leu Asp Lys
165 170 175

Ile Leu Gln Arg Cys Gln Glu Lys Asp Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Ser His Arg Val Ser
195 200 205

Glu Glx Gly Ile Glu Val Asp Arg Ala Lys Asn Tyr Val Ile Asp Glx
210 215 220

Leu Pro Ser Pro Val Asn Ile Lys Gly Ile Arg Asn Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val

245 250

<210> 58
<211> 762
<212> DNA
<213> Hordeum vulgare

<400> 58
gtgcgcaagg aggtttagaa gttcctggaa gcaggtatca tctatcgtgt tgctcatagt 60
gattggttga gtcgggtgca ttgtgtccct aagaagggag gcattaccgt tgtccctaat 120
gataaggatg aattgatccc acagaggact attactggct ataggatggt gattgatttt 180
aggaaattga ataaagccac taggaaagat cattaccctt tgccttttat cgaccaaatg 240
cgagaaaggc tgtctaaaca cacacacttc tgctttctaa acggttattt tggtttctcc 300
caaataccag ttgcacaatc tgatcaggag aaaaccactt tcacctgccc ttttggtaca 360
tttgcttata gacgtatgac ttttggctta tgtaatgcac ctgcctcctt tcaaagatgt 420
atgatggcta tattccctga cttttgtgaa aagattgttg aggttttcat ggatgacttc 480
tccatttacg gatcttcctt tgatgattgc ctcagcaacc ttgatcgagt cttgcagaga 540
tgtaaagaca ccaatctttt cttgaattgg aagaagtgcc actttatggt taatgacggc 600
atcgtcttag gacataaatt ttctgaaaga ggtattgaag tcgataaggc taaggttgat 660
ggaatcgaga aaatgccata ccccacagat atcaaaggga taagaagttt ccttggtcat 720
gctggtttct atagaaggtt cataaaagac ttcactaagg tt 762

<210> 59
<211> 254
<212> PRT
<213> Hordeum vulgare

<400> 59
Val Arg Lys Glu Val Glx Lys Phe Leu Glu Ala Gly Ile Ile Tyr Arg
1 5 10 15

Val Ala His Ser Asp Trp Leu Ser Arg Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
35 40 45

Arg Thr Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Arg Glu Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asn Gly Tyr
85 90 95

Phe Gly Phe Ser Gln Ile Pro Val Ala Gln Ser Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Thr Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ala Ile
130 135 140

```
Phe Pro Asp Phe Cys Glu Lys Ile Val Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Ile Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
                165                 170                 175

Val Leu Gln Arg Cys Lys Asp Thr Asn Leu Phe Leu Asn Trp Lys Lys
            180                 185                 190

Cys His Phe Met Val Asn Asp Gly Ile Val Leu Gly His Lys Phe Ser
        195                 200                 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Gly Ile Glu Lys
    210                 215                 220

Met Pro Tyr Pro Thr Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 60
<211> 762
<212> DNA
<213> Hordeum vulgare

<400> 60
gtgcgtaaag aggtcctaaa gttcctggaa gcgggtatta tctatcctgt tgctcacaac 60
gattgggtga gtccggtgca ttgcgtccct aagaagggat gcattaccgt tgtccctaat 120
gataaggatg aattgatccc acataggatt attactggct ataggatggt gatcgatttt 180
aggaaaatga ataaagccac taggaaagaa cattaccctt tgccttttag cgaccaaatg 240
ctagaaaggt tgtctaaaca cacacacttc tgctttctag acggttattc tagtttctcc 300
caaatactag ttgcacaatc tgatcaggag aaaaccactt tcacctaccc gttcggtacc 360
tttgcttata gacgtatgcc ttttggctta tgtaatgcac ctgccacctt tcaaagatgt 420
atgatggcta tattctctga cttttgtgaa aagtttgtcg aggttttcat ggatgacttt 480
tccgtttacg gatcttcctt tgatgattgc ctcaacaacc ttgatcgggt cttgcagaga 540
tgtaaagata ctaatcttgt cttgaattgg gagaagtgcc actttatggt taatgaaggc 600
atcgtcttag gacataaaat ttccgaaaga ggtattgaat tcgataaggc taaggttggt 660
gcaatcaaga aaatgccata ccccacagat atcaaaggta taagaagttt cttggtccat 720
gctggtttct atagaaggtt catcaaggac tttacaaagg tt 762

<210> 61
<211> 254
<212> PRT
<213> Hordeum vulgare

<400> 61
```
Val Arg Lys Glu Val Leu Lys Phe Leu Glu Ala Gly Ile Ile Tyr Pro
  1               5                  10                  15

Val Ala His Asn Asp Trp Val Ser Pro Val His Cys Val Pro Lys Lys
            20                  25                  30

Gly Cys Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro His
        35                  40                  45
```

```
Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Met Asn
 50                  55                  60

Lys Ala Thr Arg Lys Glu His Tyr Pro Leu Pro Phe Ser Asp Gln Met
 65                  70                  75                  80

Leu Glu Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
                 85                  90                  95

Ser Ser Phe Ser Gln Ile Leu Val Ala Gln Ser Asp Gln Glu Lys Thr
            100                 105                 110

Thr Phe Thr Tyr Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
    130                 135                 140

Phe Ser Asp Phe Cys Glu Lys Phe Val Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Tyr Gly Ser Ser Phe Asp Asp Cys Leu Asn Asn Leu Asp Arg
                165                 170                 175

Val Leu Gln Arg Cys Lys Asp Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

Glu Arg Gly Ile Glu Phe Asp Lys Ala Lys Val Gly Ala Ile Lys Lys
    210                 215                 220

Met Pro Tyr Pro Thr Asp Ile Lys Gly Ile Arg Ser Phe Leu Val His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 62
<211> 757
<212> DNA
<213> Hordeum vulgare

<400> 62
gaaaagaggt tgtgaagctc ctggatgaag gtattatcta tcatgttgct catagcgatt 60
gggtgagtcc ggtgcatagc gttcctaaga agggaggcat taccgttgtc cctaatgata 120
aggatgaatt gatcccgcag aggattatca ctggctatag gatggtgatc gatttcagga 180
aactgaataa agccactagg aaagatcatt acccttttgcc ttttatcgac catatgctag 240
aaaggttgtc caaactcaca cacttctgct ttctagacgg ttattctagt ttctcccaaa 300
taccagttgc acaatctgat caggagaaaa ccactttcac ctgccctttc ggtacctttg 360
cttatagacg tatgcctttt ggcttatgta atgcacctgc caccttttcaa agatgtatga 420
tggctatatt ctctaacttt tgtgaaaata ttgtcgaggt tttcatggat gacttttccg 480
tttacgggtc ttcttttgat gattgcctca gcaaccttga tcgagtctta cagagatgta 540
aagacaccaa tcttgtcttg aatggggaga agtgccactt tatggttaat gaaggcatcg 600

tcttaggaca taaaatttct gaaagaggta ttgaagtcga taaggctaag gttgatgcaa 660
tcgacaaaat gccatacccc acagatatca aaggtataag aagtttcctt ggtcatggtg 720
gtttctatag aaggtttatc aaagatttca caaaggt 757

<210> 63
<211> 251
<212> PRT
<213> Hordeum vulgare

<400> 63
Lys Glu Val Val Lys Leu Leu Asp Glu Gly Ile Ile Tyr His Val Ala
1 5 10 15

His Ser Asp Trp Val Ser Pro Val His Ser Val Pro Lys Lys Gly Gly
20 25 30

Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln Arg Ile
35 40 45

Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn Lys Ala
50 55 60

Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Ile Asp His Met Leu Glu
65 70 75 80

Arg Leu Ser Lys Leu Thr His Phe Cys Phe Leu Asp Gly Tyr Ser Ser
85 90 95

Phe Ser Gln Ile Pro Val Ala Gln Ser Asp Gln Glu Lys Thr Thr Phe
100 105 110

Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe Gly Leu
115 120 125

Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile Phe Ser
130 135 140

Asn Phe Cys Glu Asn Ile Val Glu Val Phe Met Asp Asp Phe Ser Val
145 150 155 160

Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg Val Leu
165 170 175

Gln Arg Cys Lys Asp Thr Asn Leu Val Leu Asn Gly Glu Lys Cys His
180 185 190

Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser Glu Arg
195 200 205

Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Asp Lys Met Pro
210 215 220

Tyr Pro Thr Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His Gly Gly
225 230 235 240

Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys

245 250

<210> 64
<211> 740
<212> DNA
<213> Hordeum vulgare

<400> 64
gtgcgtaaag aggtgattaa attcctagaa gaaggtatta tctatcctgt tgctcacagc 60
gattgggtga gtccggtgca ttgcattcct aagaaaggag gcattaccgt tgtccctaat 120
gataaggatg aattgatccc atagaggatt attactggct ataggatggt gattgatttt 180
aggaagttga ataaagccac taggaaagat cattaccctt tgccttttat cgaccaaatg 240
ctagaaaggc tgtctaaaca cacacacttc ttgtttctgg acggttatac tggtttctcc 300
caaataccag ttgcacaatt tgatcaggag aaaaccactt taacctgaca tttcggtacc 360
tttgcttata tacgtatgcc ttttggcttg tgtaatgcac ctgccacctt tcaaagatgt 420
atgatggcta tattctccga cttctgtgaa aagattgtca atgttttcat ggataacttc 480
tccgtttacg ggtgttcctt tgatgattgc ctcaacaacg ttgatcgagt cttacagaga 540
tgtaaggaca ccaatgttgt cttgaattgg gagaagtgtc actttatggt taatgaaggc 600
atcgtcttag gacataagat ttctgaaaga ggtattaaag ttgataaggc taaggttgat 660
gcaatcgaga aaatgccata tccacagata tcaaaggtat aagaagtttc cttggtcatg 720
ctggtttcta tagaaggttc 740

<210> 65
<211> 247
<212> PRT
<213> Hordeum vulgare

<400> 65
Val Arg Lys Glu Val Ile Lys Phe Leu Glu Glu Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala His Ser Asp Trp Val Ser Pro Val His Cys Ile Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Glx
35 40 45

Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Lys His Thr His Phe Leu Phe Leu Asp Gly Tyr
85 90 95

Thr Gly Phe Ser Gln Ile Pro Val Ala Gln Phe Asp Gln Glu Lys Thr
100 105 110

Thr Leu Thr Glx His Phe Gly Thr Phe Ala Tyr Ile Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

```
Phe Ser Asp Phe Cys Glu Lys Ile Val Asn Val Phe Met Asp Asn Phe
145                 150                 155                 160

Ser Val Tyr Gly Cys Ser Phe Asp Asp Cys Leu Asn Asn Val Asp Arg
                165                 170                 175

Val Leu Gln Arg Cys Lys Asp Thr Asn Val Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

Glu Arg Gly Ile Lys Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
    210                 215                 220

Met Pro Tyr Pro Thr Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe
                245
```

<210> 66
<211> 762
<212> DNA
<213> Avena sativa

<400> 66
gtgcgaaagg aggttttcaa gctcatggat gctggtatta tttaccctat tgctgatagt 60
gaatgggtta gtcatgttca ttgtgttcct aaaaagggag gtattaccgt tgtccctaat 120
gataatgatg agcttattcc tcaaagaata gtggtaggct ataggatgtg catcgatttt 180
aggaaagtca ataaagttac taagaaagat cactacccgc ttccttttat tgatcaaatg 240
ttggaaagat tttctaaaaa gacccatttt tgttttcttg atggttattc tggtttctct 300
caaattgttg ttaaacaaca agatcaagaa aaaactactt ttacttgccc ttatggaact 360
tatgcttata gatgtatgcc ttttggttta tgtaatgctc cttctacttt cctaaggtgc 420
atgtctgcta tctttcatgg tttttgtgag gaaattgtag aagtgttcat ggacgacttt 480
tctgtctacg gaacttcttt tgataattgt ctgcacaacc ttgataaagt tttacagaga 540
tgtgaaggaa ctaatcttgt tcttaattgg gagaaatgcc acttcatggt taatgaaggg 600
attgttcttg ggcataaagt ttctaaaaga ggcatagaag ttgatagagc taaggttgag 660
gcaattgaga agatgccatg tccaagagac atcaaaggta ttcgtagtat ccttggtcat 720
gctggtttct ataggaggtt catcaaagac ttcacaaagg tt   762

<210> 67
<211> 254
<212> PRT
<213> Avena sativa

<400> 67
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Val Arg Lys Glu Val Phe Lys Leu Met Asp Ala Gly Ile Ile Tyr Pro
  1               5                  10                  15

Ile Ala Asp Ser Glu Trp Val Ser His Val His Cys Val Pro Lys Lys
            20                  25                  30

Gly Gly Ile Thr Val Val Pro Asn Asp Asn Asp Glu Leu Ile Pro Gln
        35                  40                  45
```

```
Arg Ile Val Val Gly Tyr Arg Met Cys Ile Asp Phe Arg Lys Val Asn
     50                  55                  60

Lys Val Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
 65                  70                  75                  80

Leu Glu Arg Phe Ser Lys Lys Thr His Phe Cys Phe Leu Asp Gly Tyr
                 85                  90                  95

Ser Gly Phe Ser Gln Ile Val Val Lys Gln Gln Asp Gln Glu Lys Thr
            100                 105                 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Cys Met Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ser Thr Phe Leu Arg Cys Met Ser Ala Ile
    130                 135                 140

Phe His Gly Phe Cys Glu Glu Ile Val Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Tyr Gly Thr Ser Phe Asp Asn Cys Leu His Asn Leu Asp Lys
                165                 170                 175

Val Leu Gln Arg Cys Glu Gly Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
        195                 200                 205

Lys Arg Gly Ile Glu Val Asp Arg Ala Lys Val Glu Ala Ile Glu Lys
    210                 215                 220

Met Pro Cys Pro Arg Asp Ile Lys Gly Ile Arg Ser Ile Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 68
<211> 762
<212> DNA
<213> Avena sativa

<400> 68
gtgcgcaaag aggtctttaa gttccttgat gctggtatta tttaccctat tgctgatagt 60
caatgggtta gccttgttca ttgtgtcccc aagaaagggg gaataactgt tgtgcctaat 120
gaagataatg agcttatacc ccaaagagta gtggttgtgt atagaatgtg cattgatttt 180
agaaggatta ataaagttac taggaaagat cattatcctt tgccctttat tgatcaaatg 240
cttgagaggt tgtccaaaaa gactcacttt tgttttcttg atggtcattc tgggttttct 300
caaattgttg tgaaagcaca agaccaagag aaaactactt tcacttgtcc ttatggtact 360
tatgattata ggcgtatgcc ttttggttta tgtaatgctc ctgctacctt tcagagatgt 420
atgtctgcta tatttcatgg tttttgtgaa gaaattgtgg aggttttcat ggacgatttt 480
tctgtctatg gaacttcttt tgataactgt ttgcacaacc ttgataaatt tttgcagaga 540
tttgaagaaa ccaaccttgt tcttaattgg gagaaatgcc atttcatggt taatgaaggg 600

attgttcttg gacacaagat ctcagaaaga ggcattgaag ttgacagagc caaaattgaa 660
gcaattgaga acatgccttg ccctagagat attaaaggta ttcgtagtat ccttggtcat 720
gctggtttct atagtaggtt catcaaagac tttacaaaag tt 762

<210> 69
<211> 254
<212> PRT
<213> Avena sativa

<400> 69
Val Arg Lys Glu Val Phe Lys Phe Leu Asp Ala Gly Ile Ile Tyr Pro
1 5 10 15

Ile Ala Asp Ser Gln Trp Val Ser Leu Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Pro Asn Glu Asp Asn Glu Leu Ile Pro Gln
35 40 45

Arg Val Val Val Val Tyr Arg Met Cys Ile Asp Phe Arg Arg Ile Asn
50 55 60

Lys Val Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Lys Lys Thr His Phe Cys Phe Leu Asp Gly His
85 90 95

Ser Gly Phe Ser Gln Ile Val Val Lys Ala Gln Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Asp Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Ser Ala Ile
130 135 140

Phe His Gly Phe Cys Glu Glu Ile Val Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Thr Ser Phe Asp Asn Cys Leu His Asn Leu Asp Lys
165 170 175

Phe Leu Gln Arg Phe Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Arg Ala Lys Ile Glu Ala Ile Glu Asn
210 215 220

Met Pro Cys Pro Arg Asp Ile Lys Gly Ile Arg Ser Ile Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Ser Arg Phe Ile Lys Asp Phe Thr Lys Val

245 250

<210> 70
<211> 756
<212> DNA
<213> Avena sativa

<400> 70
aaggaggttt ttaaactcct tgatgttggt attatttacc ctattgctga tagtgaatgg 60
gttagtcttg ttcattgtgt tcctaaaaag ggaggtatta ccgttgttcc taatgataat 120
gatgagctta ttcctcaaag aatagtggta ggctatagga tgtgcataga ttttaggaaa 180
gttaataaag ttactaagaa agatcactac ccgcttcctt ttattgatca aatgttggaa 240
aggttgtcta aaaagaccca tttttgtttt cttgatggtt actctagctt ctctcaaatt 300
gctgttaaac aacaagatca agaaaaaact acttttactt gcccttatgg aacttttgct 360
tatagacgta tgcctattgg tttatgtaat gctcctgcta cttttcaaag gtgtatgtct 420
gctatatttc atggtttttg tgaggaaatt gtagaagtgt tcatggatga cttttctgtc 480
tatggaactt cttttgataa ttgcctgcac aaccttgata aagttttgca gagatgtgaa 540
gaaactaata ttgttcttaa ttgggagaaa ttccacttca tggttaatga agggattgtc 600
cttgggcata aagtttctaa aagaggcata gaagttgata gagctaaggt tgaggcaatt 660
gagaagatgc catgcccaag agacatcaaa ggtatacgta gtatccttgg tcatgctggt 720
ttctatagaa ggtttatcaa agacttcaca aaggtt 756

<210> 71
<211> 252
<212> PRT
<213> Avena sativa

<400> 71
Lys Glu Val Phe Lys Leu Leu Asp Val Gly Ile Ile Tyr Pro Ile Ala
1 5 10 15

Asp Ser Glu Trp Val Ser Leu Val His Cys Val Pro Lys Lys Gly Gly
20 25 30

Ile Thr Val Val Pro Asn Asp Asn Asp Glu Leu Ile Pro Gln Arg Ile
35 40 45

Val Val Gly Tyr Arg Met Cys Ile Asp Phe Arg Lys Val Asn Lys Val
50 55 60

Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met Leu Glu
65 70 75 80

Arg Leu Ser Lys Lys Thr His Phe Cys Phe Leu Asp Gly Tyr Ser Ser
85 90 95

Phe Ser Gln Ile Ala Val Lys Gln Gln Asp Gln Glu Lys Thr Thr Phe
100 105 110

Thr Cys Pro Tyr Gly Thr Phe Ala Tyr Arg Arg Met Pro Ile Gly Leu
115 120 125

Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Ser Ala Ile Phe His
130 135 140

```
Gly Phe Cys Glu Glu Ile Val Glu Val Phe Met Asp Asp Phe Ser Val
145                 150                 155                 160

Tyr Gly Thr Ser Phe Asp Asn Cys Leu His Asn Leu Asp Lys Val Leu
                165                 170                 175

Gln Arg Cys Glu Glu Thr Asn Ile Val Leu Asn Trp Glu Lys Phe His
            180                 185                 190

Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser Lys Arg
        195                 200                 205

Gly Ile Glu Val Asp Arg Ala Lys Val Glu Ala Ile Glu Lys Met Pro
    210                 215                 220

Cys Pro Arg Asp Ile Lys Gly Ile Arg Ser Ile Leu Gly His Ala Gly
225                 230                 235                 240

Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
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<210> 72
<211> 748
<212> DNA
<213> Secale cereale

<400> 72
gtgcggaaag aggtctttaa actcctagag gcaggtatta actatcccat tgctgatagc 60
cagcgggtaa gtcatgtcca ttgtgttcct aagaaaggag gtatgactgt cgtccctaag 120
gataaagatg aatttatccc gcaaagaata gttacaggtt ataggatggt aattgatttt 180
cgtaagttaa ataaagctac tatgaaagat cattacccct tgccatttat tgatcaaatg 240
ccagacaggt tatccaaaca tactcatttc tgctttctag atggttattc tggtttctct 300
caaatacctt tgtcaaaggg ggatcaagaa aagaccacct ttacttgtcc tttcggtacc 360
tttgcttata gaggtatgcc ttttggttta tgtaatgcac ctgctacctt tcaaagatgt 420
atgatcgtta tattctctgt ctttttttgaa aagattgttg aggtattcat ggatgatttc 480
tccgtttatg gaacttcttt tgatgattgc ttaagcaacc ttgatcgagt tttgcagaga 540
tgtgaagata ctaaccttgt cttgaattgg gagaagtgcc actttatggt taatgaaggc 600
attttcttgg gacataaaat ttctgaaaga ggtactgaag ttgagaaagc taaagtggat 660
gctattgaaa agatgccatg ccctaaggat atgaaaggta tacgaagttt ccttggtcac 720
gctgggtttt ataggaggtt cataaaag 748

<210> 73
<211> 249
<212> PRT
<213> Secale cereale

<400> 73
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Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Ile Asn Tyr Pro
  1               5                  10                  15

Ile Ala Asp Ser Gln Arg Val Ser His Val His Cys Val Pro Lys Lys
            20                  25                  30

Gly Gly Met Thr Val Val Pro Lys Asp Lys Asp Glu Phe Ile Pro Gln
        35                  40                  45
```

```
Arg Ile Val Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
 50                  55                  60

Lys Ala Thr Met Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
 65                  70                  75                  80

Pro Asp Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
                 85                  90                  95

Ser Gly Phe Ser Gln Ile Pro Leu Ser Lys Gly Asp Gln Glu Lys Thr
            100                 105                 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Gly Met Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Ile Val Ile
    130                 135                 140

Phe Ser Val Phe Phe Glu Lys Ile Val Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Tyr Gly Thr Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
                165                 170                 175

Val Leu Gln Arg Cys Glu Asp Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Asn Glu Gly Ile Phe Leu Gly His Lys Ile Ser
        195                 200                 205

Glu Arg Gly Thr Glu Val Glu Lys Ala Lys Val Asp Ala Ile Glu Lys
    210                 215                 220

Met Pro Cys Pro Lys Asp Met Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys
                245
```

<210> 74
<211> 762
<212> DNA
<213> Secale cereale

<400> 74
gtgcggaagg aggtcgttaa gcttccagag gcaggtatta tctatcccgt tgctgatagc 60
cagtgggtaa gtcatgtcca ttgtgtccct aagaagggag gtatgactgt cgttcctaat 120
gacaaacatg aattgatccc gcaaagaata gttacaggtt ataggatggt aattgatttc 180
cgtaagttaa ataaagctac taagaaagat cattacccct tgccatttat tgatcaaatg 240
ctagacaggt tatccaaaca tactcatttt tgctttctag atggttatta tggtttctct 300
caaatacctg tgtcaaaagg ggatcaagaa aagaccactt tcacttgtcc tttcggtacc 360
tttgcttata gacgtatgcc ttttggttta tgtaatgcac ctgctacctt tcaaagatgt 420
atgatggcta tattatctga tttttgagaa aagattgttg aggttttcat ggatgatttc 480
tccgtttacg gaacttcttt tgatgactac ttaagcaaca atgatcgagt tttgcagaga 540
tgtgaagaca ctaatcttgt tttgaattgg gagaagtgcc actttatggt taatgaaggc 600

attgtcttgg gacaaaaaat ttctgaaaga ggtattgaag ttgacaaagc taaagtcgat 660
gctgttgaaa agatgccatg ccccaaggac atcaaaggta tacgaagttt ccttggtcat 720
gttgggtttt ataggaggtt catcaaagac ttcacgaaag tt 762

<210> 75
<211> 254
<212> PRT
<213> Secale cereale

<400> 75
Val Arg Lys Glu Val Val Lys Leu Pro Glu Ala Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala Asp Ser Gln Trp Val Ser His Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Val Pro Asn Asp Lys His Glu Leu Ile Pro Gln
35 40 45

Arg Ile Val Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Asp Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Tyr Gly Phe Ser Gln Ile Pro Val Ser Lys Gly Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Leu Ser Asp Phe Glx Glu Lys Ile Val Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Thr Ser Phe Asp Asp Tyr Leu Ser Asn Asn Asp Arg
165 170 175

Val Leu Gln Arg Cys Glu Asp Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly Gln Lys Ile Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Val Glu Lys
210 215 220

Met Pro Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val

245 250

<210> 76
<211> 762
<212> DNA
<213> Secale cereale

<400> 76
gtgcgtaagg aggtggttaa gctcctagaa gcaggtatta tctatccagt tgctgatagt 60
cagtgggtaa gtcatgtcca ttatgttcct aagaaaggag gtatgactgt tgtccctaat 120
gataaagatg aattgatccc gcaaagaata gttacaggtt ataggatggt aagtgatttc 180
cgtaagttga ataaagccac taagaaagat cattacccct tgccatttat tgatcaaatg 240
ctagaaaggt tatccaaaca tactcatttc ttctttctag atggttattc tggtttctct 300
caaatacctg tgtcaaaagg ggatcaagaa aagaccacct ttacttgtac tttcggtacc 360
tttgcttata gacgtatgcc ttttggttta tgtaatgcac ctgctacctt tcaaagatgc 420
atgatggcta tattctctga cttttgtgaa aagattgttg aggtattcat ggatgatttc 480
tccgtttacg gaacttcttt tgatgattgc ttaagcaacc ttgatcgagt tttgcagaga 540
tgtgaagaca ctaaccttgt cttgaattgc gagaagtgcc actttatggt taatgaaggc 600
attgtcttgg gacataaaat ttctgaaata ggtattgaag ttgacaaagc taaagttgat 660
gctattgaaa agatgccatg cgcaaaggac atcaaaggta tacggagttt ccttggtcat 720
gccgggtttt ataggaggtt catcaaagat ttctcaaagg tt 762

<210> 77
<211> 254
<212> PRT
<213> Secale cereale

<400> 77
Val Arg Lys Glu Val Val Lys Leu Leu Glu Ala Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala Asp Ser Gln Trp Val Ser His Val His Tyr Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
35 40 45

Arg Ile Val Thr Gly Tyr Arg Met Val Ser Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Lys His Thr His Phe Phe Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Phe Ser Gln Ile Pro Val Ser Lys Gly Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Thr Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

```
Phe Ser Asp Phe Cys Glu Lys Ile Val Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Tyr Gly Thr Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
                165                 170                 175

Val Leu Gln Arg Cys Glu Asp Thr Asn Leu Val Leu Asn Cys Glu Lys
            180                 185                 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

Glu Ile Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
    210                 215                 220

Met Pro Cys Ala Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Ser Lys Val
                245                 250
```

<210> 78
<211> 759
<212> DNA
<213> Secale cereale

<400> 78
gtgcgcaagg aagtttttaa gtttctagag gcaggtataa tctatccagt tgctgatagc 60
cagtgggtaa gtcctgtcca ttgtgtccct aagaagggag gtatgactgt agttcctaat 120
gataaagatg aattgatctc gcaaagaatt gttacaggtt ataggatggt aattgatttt 180
cgcaaattaa ataaagccac taagaaagat caataccctt tgccttttat tgatcaaatg 240
ctagaaaggt tatccaaaca cacccatttt tgctttctag atggttattc tagtttctct 300
caaataccta tgtcaaaagg ggataaagaa aagaccactt ttacttgtcc ctttggtact 360
ttgcttatag acgtatgcct tttggtttat gtaatgcatc tgctaccttt caaacatgca 420
tgatggctat actctatgat ttttgtgaaa gaatgttgat gttttcatgg atgatttttg 480
tatttacgaa acttcttttg atgattgctt gagcaacctt gatcgagttt tgcagagatg 540
tgaagaaact aatcttgtct tgaactggga aaagtcccac tttatggtta atgaaggcat 600
tgcttgggac ataaaatttc tgaaagaggt accgaagttg acaaagctaa agttgatgct 660
gttgaaaaga tgccatgtcc caaggacatc aaaggtataa gaagtttcct tggtcatgcc 720
gggttttata ggaggtttat caaggacttc accaaggtt   759

<210> 79
<211> 254
<212> PRT
<213> Secale cereale

<400> 79
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Val Arg Lys Glu Val Phe Lys Phe Leu Glu Ala Gly Ile Ile Tyr Pro
  1               5                  10                  15

Val Ala Asp Ser Gln Trp Val Ser Pro Val His Cys Val Pro Lys Lys
            20                  25                  30

Gly Gly Met Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Ser Gln
        35                  40                  45
```

```
Arg Ile Val Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
 50                  55                  60

Lys Ala Thr Lys Lys Asp Gln Tyr Pro Leu Pro Phe Ile Asp Gln Met
 65                  70                  75                  80

Leu Glu Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
                 85                  90                  95

Ser Ser Phe Ser Gln Ile Pro Met Ser Lys Gly Asp Lys Glu Lys Thr
            100                 105                 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Ser Ala Thr Phe Gln Thr Cys Met Met Ala Ile
    130                 135                 140

Leu Tyr Asp Phe Cys Glu Arg Ile Val Asp Val Phe Met Asp Asp Phe
145                 150                 155                 160

Cys Ile Tyr Glu Thr Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
                165                 170                 175

Val Leu Gln Arg Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Ser His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

Glu Arg Gly Thr Glu Val Asp Lys Ala Lys Val Asp Ala Val Glu Lys
    210                 215                 220

Met Pro Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 80
<211> 761
<212> DNA
<213> Triticum aestivum

<400> 80
gtgcgtaagg aggttctcaa gtttctggag gtaggtataa tttatcccgt tgctgatagt 60
cagtgggtaa gtcctgtcca ttgtgtccct aagaagggag gtattactgt tgtccctaat 120
gataaagatg aattgattcc tcaaagaatt attacggtta taggatggta attgatttcc 180
gcaaattaaa taaagccact aagagagatc attacccctt acctttttatt gatcaaattc 240
tagaaagatt atgcaaacat acacattatt gcttccaaga tggttatcct ggtttttctc 300
aaatacctgt gtcggctaaa gatcaatcaa agactacttt tacatgccct tttggtactt 360
ttgcttatag atgtatgcct tttggtttat gtaatgcacc tgctaccttt caaagatgca 420
tgatggctat attctctgat ttttgtgaaa agatttgtga ggttttcatg gatgactttt 480
ccgtctatgg ttcctctttt gatgattgct tgagcaatct tgatcgagtt ttgcagagat 540
gtgaagaaac taatcttgtc ttgaattggg aaaagtgtca ctttatggtt aatgaaggta 600

ttgtcttggg gcacaaagtt tctgaaagag gtattgaagt tgataaagcc aaggttgaca 660
ctattgaaaa gataccatgt cccaaggaca tcaaaggtac aagaagtttc cttggtcacg 720
ccggatttta taggaggttc ataaaagatt tcacaaaggt t 761

<210> 81
<211> 254
<212> PRT
<213> Triticum aestivum

<400> 81
Val Arg Lys Glu Val Leu Lys Phe Leu Glu Val Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala Asp Ser Gln Trp Val Ser Pro Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
35 40 45

Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Arg Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Ile
65 70 75 80

Leu Glu Arg Leu Cys Lys His Thr His Tyr Cys Phe Gln Asp Gly Tyr
85 90 95

Pro Gly Phe Ser Gln Ile Pro Val Ser Ala Lys Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Cys Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Ser Asp Phe Cys Glu Lys Ile Cys Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
165 170 175

Val Leu Gln Arg Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Thr Ile Glu Lys
210 215 220

Ile Pro Cys Pro Lys Asp Ile Lys Gly Thr Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val

245 250

<210> 82
<211> 780
<212> DNA
<213> Triticum aestivum

<400> 82
gtgcggaagg aggtgtttaa gctccttgag gcaggtataa tttatcccgt tgctgatagt 60
aagtgggtaa ttcctgtcca ttaagtgatc gtgattactg ttgttcctaa gaagggaggt 120
attaccgttg ttcctaatga taaagatgaa ttgattcctc aaagaaccat tactggttat 180
aggatggtaa ttgatttccg caaattaaat aaggctacta aaaaatatca ttacccctta 240
ccttttatcg atcaaatgct agaaagatta tccaaacata cacatttttg ctttctagat 300
ggttactctg gtttctctca aatacctgtg tcagccaaag atcaatcaaa gactactttt 360
acatgccctt ttggtacttt tgcttataga cgtatgcctt ttggtttatg taatgcacct 420
gctacctttc aaagatacat gatggctata ttatctgact tttgtgaaaa gatttgtgag 480
gttttcatgg acgactcttc catctatgga tcttcttttg atgattgctt gagcaacctt 540
gatcgagttt tgcagagatg tgaagaaact tatcttgtct tgaattggga aaagtgccaa 600
tttatggtta atgaaggtat tgtcctgggg cataaagttt ctgaaagagg tattcgagtt 660
gataaagcca aggttgatgc tattgaaaag atgccatgtc ccatggacat caaaggtata 720
agaagtttcc ttggtcatgc cggtttttat aggaggttca taaaagactt cacgaaggtt 780

<210> 83
<211> 260
<212> PRT
<213> Triticum aestivum

<400> 83
Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala Asp Ser Lys Trp Val Ile Pro Val His Glx Val Ile Val Ile
20 25 30

Thr Val Val Pro Lys Lys Gly Gly Ile Thr Val Val Pro Asn Asp Lys
35 40 45

Asp Glu Leu Ile Pro Gln Arg Thr Ile Thr Gly Tyr Arg Met Val Ile
50 55 60

Asp Phe Arg Lys Leu Asn Lys Ala Thr Lys Lys Tyr His Tyr Pro Leu
65 70 75 80

Pro Phe Ile Asp Gln Met Leu Glu Arg Leu Ser Lys His Thr His Phe
85 90 95

Cys Phe Leu Asp Gly Tyr Ser Gly Phe Ser Gln Ile Pro Val Ser Ala
100 105 110

Lys Asp Gln Ser Lys Thr Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala
115 120 125

Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln
130 135 140

```
Arg Tyr Met Met Ala Ile Leu Ser Asp Phe Cys Glu Lys Ile Cys Glu
145                 150                 155                 160

Val Phe Met Asp Asp Ser Ser Ile Tyr Gly Ser Ser Phe Asp Asp Cys
                165                 170                 175

Leu Ser Asn Leu Asp Arg Val Leu Gln Arg Cys Glu Glu Thr Tyr Leu
            180                 185                 190

Val Leu Asn Trp Glu Lys Cys Gln Phe Met Val Asn Glu Gly Ile Val
        195                 200                 205

Leu Gly His Lys Val Ser Glu Arg Gly Ile Arg Val Asp Lys Ala Lys
    210                 215                 220

Val Asp Ala Ile Glu Lys Met Pro Cys Pro Met Asp Ile Lys Gly Ile
225                 230                 235                 240

Arg Ser Phe Leu Gly His Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp
                245                 250                 255

Phe Thr Lys Val
            260
```

<210> 84
<211> 762
<212> DNA
<213> Triticum aestivum

<400> 84
gtgcgtaagg aggtattcaa gcttctggag gcaggtataa tttatcccgt tgttgatagt 60
caatgggtaa gtcctgtcca ttgtgtcctt aagaagggag gtattactgt tgtccctaat 120
gataaagatg aattgattcc gcaaagaatt atcacaggtt ataggatggt aattgatttc 180
cgtaagttaa ataaagctac taagaaagat cattacccct tacctttttat tgatcaaatg 240
ttagaaagat tatgcaaaca tacacattat tgctttctag atggttattc tggtttctct 300
caaatacctg tgtcagctaa ggatcaatca aagactactt ttacatgccc ttttggtact 360
tttggttata gacgtatgcc tttcgattta tgtaatgcac ctgctacctt tcaaatatgc 420
atgatggcta tattctctga cttttgcgaa aagatttgtg aggttttcat ggacgacttt 480
tccgtctatg gttcctctta tgatgattgc ttgagcaatc ttaatcgagt tttgcagaga 540
tgtgaagaaa ctaatcttgt cttgaattgg gaaaagtgcc actttatggt taatgaaggt 600
attgtcttgg ggcacaaagt ttctgaacga ggtattgaag ttgataaggc caaggttgat 660
gctattgaaa agatgacatg tcccaaggac atcaaaggta taagaagttt ccttggtcac 720
gccagatttt ataggaggtt cataaaagac ttcacaaagg tt 762

<210> 85
<211> 254
<212> PRT
<213> Triticum aestivum

<400> 85
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Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Ile Ile Tyr Pro
  1               5                  10                  15

Val Val Asp Ser Gln Trp Val Ser Pro Val His Cys Val Leu Lys Lys
            20                  25                  30
```

```
Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
        35                  40                  45

Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
    50                  55                  60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65                  70                  75                  80

Leu Glu Arg Leu Cys Lys His Thr His Tyr Cys Phe Leu Asp Gly Tyr
                85                  90                  95

Ser Gly Phe Ser Gln Ile Pro Val Ser Ala Lys Asp Gln Ser Lys Thr
            100                 105                 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Gly Tyr Arg Arg Met Pro Phe
        115                 120                 125

Asp Leu Cys Asn Ala Pro Ala Thr Phe Gln Ile Cys Met Met Ala Ile
    130                 135                 140

Phe Ser Asp Phe Cys Glu Lys Ile Cys Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Tyr Gly Ser Ser Tyr Asp Asp Cys Leu Ser Asn Leu Asn Arg
                165                 170                 175

Val Leu Gln Arg Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
        195                 200                 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
    210                 215                 220

Met Thr Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Arg Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 86
<211> 762
<212> DNA
<213> Triticum aestivum

<400> 86
gtgcggaaag aggtgctcaa gcttctggag gcaggtataa tttatcccgt tgctgagagt 60
cagtgggtaa gtcctgtcca ttgtgtccct aagaagggag gtattactgt tgtccctaat 120
gataaagatg aattgattcc tcaaagaatt attacaggtt ataggatggt aattgatttc 180
cgcaaattaa ataaagccac caagaaagat cattacccct tacctttttat tgatcaaatg 240
ctagaaagat tatgcaaaca tacacattat tgcttcctag atggttattc tggtttctct 300
caaatacctg tgtcggctaa agatcaatca aagactactt ttacatgccc ttttggtact 360
tttgcttata gacgtatgcc ttttggttta tgtaatgcac cttctacctt tcaaagatgc 420

atgatggcta tattctctga tttttgtgaa aagatttgtg aggttttcat ggacgaattt 480
tccgtctatg gttcctcttt tgatgattgc ttgagcaatc ctgatcgagt tttgcagaga 540
tgtgaagaaa ctaatcttgt cttgaattgg gaaaagtgcc actttatggt taatgaaggt 600
attgtcttgg ggcacaaagt ttctgaaaga ggtattgaag ttgataaagc caaggttgac 660
gctattgaaa agatgccatg tcccaaggac atcaaaggta taagaagttt ccttggtcac 720
gccggatttt ataggaggtt cataaaagac ttcacaaagg tt 762

<210> 87
<211> 254
<212> PRT
<213> Triticum aestivum

<400> 87
Val Arg Lys Glu Val Leu Lys Leu Leu Glu Ala Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala Glu Ser Gln Trp Val Ser Pro Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
35 40 45

Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Cys Lys His Thr His Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Phe Ser Gln Ile Pro Val Ser Ala Lys Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ser Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Ser Asp Phe Cys Glu Lys Ile Cys Glu Val Phe Met Asp Glu Phe
145 150 155 160

Ser Val Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Pro Asp Arg
165 170 175

Val Leu Gln Arg Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
210 215 220

Met Pro Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His

225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 88
<211> 762
<212> DNA
<213> Triticum aestivum

<400> 88
gtgcgtaagg aggttttcaa gttccttgag gcaggtatta cttatcccgt tgctgatagt 60
gaatgggtaa gccctctcca ttgtgttcct aaaaagggag gtattaccgt tgttcttaat 120
gataaagatg aattgatccc gcaaataatt attacaggtt ataggatggt aattgatttc 180
cataagttaa ataaagctac taagaaagat cattacccct tacctcttat tgatcaaatt 240
ctagaaagac tatccaaaca cacacatttc tgctttctag atggttatac tggtttctct 300
caaatacctg tgtcagtgaa ggatcaatct aaaactactt ttacttgccc ttttggtact 360
tttgcttata gacttatgcc ttttggttta tgtaatgcac ctacttcctt tcaaagatgc 420
atgatggcta tattctctgt tttttgtgaa aatatttgtg aggtattcat ggatgatttc 480
tccgtttatg gatcctcttt tgatgattgt ttgagcaacc ttgatcgagt tttgcagaga 540
tgcgaagaca ctagtctcat cctgaattgg gaaaagtgtc actttatggt taatgaaggc 600
attgtcttgg ggcataagat ttccgagaga ggtattgaag ttgacaaagc caaagttgat 660
gctattgaaa agattccatg tcccaaggac ataaaaggta taagaagttt ccttggtcat 720
gctggttttt ataggaggtt catcaaagac ttctcaaagg tt 762

<210> 89
<211> 254
<212> PRT
<213> Triticum aestivum

<400> 89
Val Arg Lys Glu Val Phe Lys Phe Leu Glu Ala Gly Ile Thr Tyr Pro
1 5 10 15

Val Ala Asp Ser Glu Trp Val Ser Pro Leu His Cys Val Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Leu Asn Asp Lys Asp Glu Leu Ile Pro Gln
35 40 45

Ile Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe His Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Leu Ile Asp Gln Ile
65 70 75 80

Leu Glu Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Thr Gly Phe Ser Gln Ile Pro Val Ser Val Lys Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Leu Met Pro Phe
115 120 125

```
Gly Leu Cys Asn Ala Pro Thr Ser Phe Gln Arg Cys Met Met Ala Ile
    130                 135                 140

Phe Ser Val Phe Cys Glu Asn Ile Cys Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
                165                 170                 175

Val Leu Gln Arg Cys Glu Asp Thr Ser Leu Ile Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
    210                 215                 220

Ile Pro Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Ser Lys Val
                245                 250
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<210> 90
<211> 791
<212> DNA
<213> Gossypium hirsutum

<400> 90
gtgcgcaagg aggttttaaa gctacttgat gacgggatga tctatcccat atctaacagt 60
aattgggtta gcccagtaca catagtacca aaaaagacca gtgcaaccgt aatcgagaat 120
tcggcaggtg agatagttcc cactcgggtc caaaacgggt ggagagtatg catcgattac 180
aggaagttga attccttaac tcggaaggat cactttccac ttccttttat tgaccagatg 240
ttagaacgtt tagctggaaa gtctcattat ttagaacgtt tagctggaaa gtctcattat 300
tgttgtttgg atggttacta aggtttttc cagatcccag tggcaccgga ggatcaagaa 360
agacaatgtt tacgtgccca tttggcacgt tttcttacag acggatgccg ttcggactct 420
gtaatgcacc agccagtttt cataggtgca tggtaagtat attttcagac tacgtcgata 480
aaattatcga ggtgttcatg gacgacttta ctgtatatgg tgagtccttc gaggtaagtc 540
tgacgaacct tgcaaaaatt ttggaaagat gcttagaatt taatcttgtt ctaaattatg 600
agaaatgcca ttttatggta gacaagggat tagttctagg tcatattatt tctgctgatg 660
gaatttctgt tgataaagca aaaatcaaca tcattaactc actaccatac cccacaactg 720
tgagggagat ttggtctttc cttggtcatg caggtttcta caagtggttc atcaaagact 780
tttcaaaagt t 791

<210> 91
<211> 264
<212> PRT
<213> Gossypium hirsutum

<400> 91
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Val Arg Lys Glu Val Leu Lys Leu Leu Asp Asp Gly Met Ile Tyr Pro
  1               5                  10                  15

Ile Ser Asn Ser Asn Trp Val Ser Pro Val His Ile Val Pro Lys Lys
```

20 25 30

Thr Ser Ala Thr Val Ile Glu Asn Ser Ala Gly Glu Ile Val Pro Thr
35 40 45

Arg Val Gln Asn Gly Trp Arg Val Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Ser Leu Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly Lys Ser His Tyr Leu Glu Arg Leu Ala Gly
85 90 95

Lys Ser His Tyr Cys Cys Leu Asp Gly Tyr Glx Gly Phe Phe Gln Ile
100 105 110

Pro Val Ala Pro Glu Asp Gln Glu Lys Thr Met Phe Thr Cys Pro Phe
115 120 125

Gly Thr Phe Ser Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro
130 135 140

Ala Ser Phe His Arg Cys Met Val Ser Ile Phe Ser Asp Tyr Val Asp
145 150 155 160

Lys Ile Ile Glu Val Phe Met Asp Asp Phe Thr Val Tyr Gly Glu Ser
165 170 175

Phe Glu Val Ser Leu Thr Asn Leu Ala Lys Ile Leu Glu Arg Cys Leu
180 185 190

Glu Phe Asn Leu Val Leu Asn Tyr Glu Lys Cys His Phe Met Val Asp
195 200 205

Lys Gly Leu Val Leu Gly His Ile Ile Ser Ala Asp Gly Ile Ser Val
210 215 220

Asp Lys Ala Lys Ile Asn Ile Ile Asn Ser Leu Pro Tyr Pro Thr Thr
225 230 235 240

Val Arg Glu Ile Trp Ser Phe Leu Gly His Ala Gly Phe Tyr Lys Trp
245 250 255

Phe Ile Lys Asp Phe Ser Lys Val
260

<210> 92
<211> 763
<212> DNA
<213> Gossypium hirsutum

<400> 92
gtgcgtaaag aggtcgtaaa gctacttgat tccgggatga tctatcccat atctgacaat 60
aattgggtta gtccagtcca catagtaccc aaaaagaccg gtgtaaccgt aattgagaat 120
tcagcaggtg agatggttcc cacttaagtc cgaaacggtc ggagagtatg catcgattac 180

aggaagttga attccttaac tcggaaagat cactttccac ttctttttat tgatcagatg 240
ttagaacatt tagccagaaa gtctcattat tgttgtctgg atggttactc aggtttttc 300
cagatcccaa tggcactaaa ggatcaagaa aagatgacat ttacgtgccc atttggcatg 360
ttcgcttata gaaggatgtc gtttcagact ttgcaatgca ccaaccatgt ttcagaggtg 420
catgataagt atatttttg actatgttaa gaaaataatt gaggtgttca tggacgaatt 480
tactgtatat agtgagtcct tcgaggtata tttgtcaaat ctagaaaaat ttttggaaag 540
atgcttagaa tttaatcttg ttctaaatta tgagaattgc tatttaatgg tagacaaggg 600
attagttcta ggtcatatca tttctgctaa gggaatttct gtcgataaag taaaaattaa 660
catcataagc tcaataccat accccacaac tgtgagggag attcgttctt tccttagtca 720
tataggtttc tataggcgat tcatcaagga cttttcaaaa gtt 763

<210> 93
<211> 254
<212> PRT
<213> Gossypium hirsutum

<400> 93
Val Arg Lys Glu Val Val Lys Leu Leu Asp Ser Gly Met Ile Tyr Pro
1 5 10 15

Ile Ser Asp Asn Asn Trp Val Ser Pro Val His Ile Val Pro Lys Lys
20 25 30

Thr Gly Val Thr Val Ile Glu Asn Ser Ala Gly Glu Met Val Pro Thr
35 40 45

Glx Val Arg Asn Gly Arg Arg Val Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Ser Leu Thr Arg Lys Asp His Phe Pro Leu Leu Phe Ile Asp Gln Met
65 70 75 80

Leu Glu His Leu Ala Arg Lys Ser His Tyr Cys Cys Leu Asp Gly Tyr
85 90 95

Ser Gly Phe Phe Gln Ile Pro Met Ala Leu Lys Asp Gln Glu Lys Met
100 105 110

Thr Phe Thr Cys Pro Phe Gly Met Phe Ala Tyr Arg Arg Met Ser Phe
115 120 125

Arg Leu Cys Asn Ala Pro Thr Met Phe Gln Arg Cys Met Ile Ser Ile
130 135 140

Phe Phe Asp Tyr Val Lys Lys Ile Ile Glu Val Phe Met Asp Glu Phe
145 150 155 160

Thr Val Tyr Ser Glu Ser Phe Glu Val Tyr Leu Ser Asn Leu Glu Lys
165 170 175

Phe Leu Glu Arg Cys Leu Glu Phe Asn Leu Val Leu Asn Tyr Glu Asn
180 185 190

Cys Tyr Leu Met Val Asp Lys Gly Leu Val Leu Gly His Ile Ile Ser
195 200 205

Ala Lys Gly Ile Ser Val Asp Lys Val Lys Ile Asn Ile Ile Ser Ser
210 215 220

Ile Pro Tyr Pro Thr Thr Val Arg Glu Ile Arg Ser Phe Leu Ser His
225 230 235 240

Ile Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Ser Lys Val
245 250

<210> 94
<211> 723
<212> DNA
<213> Gossypium hirsutum

<400> 94
gtgcgtaagg aggttttgaa attgttggat gctggaatga tatactcgat ctttgacagt 60
gattgggtta gctgggttca tgtcgtgcca aagaaaactg gcgtgacagt ggtgaaaaac 120
tcatcaggag agctagtccc tacccgagtc cagaatcgat ggagggtttg catcgattac 180
aggaagttga acgcagctac ccgaaatgac cattttccac ttcccttcat tgatcaaatg 240
ctcgagcgat tagctaataa gacccattat tgttgtctcg atgggtactc aggacttttc 300
caaattccgg tggcacctga ggatcaagac aaaacaactt tcacgtgccc ctttggaacg 360
tttgcgtata gaagaatgtc gtttggactc tgtaatgctc cggccacttt ccagagatgt 420
atggtgagca tattctctga ttatgtcgag aaaatcattg aattcttcat ggatgacttc 480
acggtgtacg gtaactcttt taacgaatgt ctcgataatc ttgctaagat attacagaga 540
tgcctagaat ttaatcttgt tttaaattat gaaaaatgcc acttcatggt tgacaaagga 600
ttaattttgg gtcatatagt ttcttcagaa ggtattgagg tcaataaagc aaaaacgaat 660
attattgact cattacctta ccccagattt tacagacgat tcataaagga cttcacaaaa 720
gtt 723

<210> 95
<211> 241
<212> PRT
<213> Gossypium hirsutum

<400> 95
Val Arg Lys Glu Val Leu Lys Leu Leu Asp Ala Gly Met Ile Tyr Ser
1 5 10 15

Ile Phe Asp Ser Asp Trp Val Ser Trp Val His Val Val Pro Lys Lys
20 25 30

Thr Gly Val Thr Val Val Lys Asn Ser Ser Gly Glu Leu Val Pro Thr
35 40 45

Arg Val Gln Asn Arg Trp Arg Val Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Ala Ala Thr Arg Asn Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Asn Lys Thr His Tyr Cys Cys Leu Asp Gly Tyr
85 90 95

Ser Gly Leu Phe Gln Ile Pro Val Ala Pro Glu Asp Gln Asp Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Val Ser Ile
130 135 140

Phe Ser Asp Tyr Val Glu Lys Ile Ile Glu Phe Phe Met Asp Asp Phe
145 150 155 160

Thr Val Tyr Gly Asn Ser Phe Asn Glu Cys Leu Asp Asn Leu Ala Lys
165 170 175

Ile Leu Gln Arg Cys Leu Glu Phe Asn Leu Val Leu Asn Tyr Glu Lys
180 185 190

Cys His Phe Met Val Asp Lys Gly Leu Ile Leu Gly His Ile Val Ser
195 200 205

Ser Glu Gly Ile Glu Val Asn Lys Ala Lys Thr Asn Ile Ile Asp Ser
210 215 220

Leu Pro Tyr Pro Arg Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys
225 230 235 240

Val

<210> 96
<211> 762
<212> DNA
<213> Lycopersicon esculentum

<400> 96
gtgcggaaag aggttgtgaa gctgttagat acgggtattg tctagccaat ttcggacaac 60
aagtaggtta gtccagtaca atgtgaacct aaaaagggag acataacggt gatcactaat 120
gaaaaaaatg agttgatccc aaccatgata gtcacataat ggagaatatg catggattac 180
aggaaattga atgaagccac caggaaggac cattacccgg tccctttttat tgatcagatg 240
ttggaccggt tggctgggga ataatattat tgttttctta atggctattt acggtacaac 300
caaattgtga tttcaccaaa ggattaagag aaaaccactt tcacttgccc gtatggtaca 360
tatgctttca aaaagatacc ttttgggtta tgaaatgcct cggctacttt ccaatgatgc 420
atgatggcta tttttcatga tatggttgaa gattttgttg agatattcat gaatgatttc 480
tcagtgtttg gggattcttt tgatatgtgc ttggagaatt tggacagtgt gttggctagt 540
tgtgaagaaa ctaatctttt cctaaactgg gaataatagc aatttctagt aaaggaaggg 600
attatgctag gacataaggt gtcaaagaga ggtatggaag ttgatagtgc caaagtggag 660
gttattgaaa agcttccccc tcctatatct gttaaaggga tgcaaagttt tctgggtcat 720
gttgggttct ataggagatt cataaaagac ttcacaaagg tt 762

<210> 97
<211> 254
<212> PRT
<213> Lycopersicon esculentum

<400> 97
Val Arg Lys Glu Val Val Lys Leu Leu Asp Thr Gly Ile Val Glx Pro

1 5 10 15

Ile Ser Asp Asn Lys Glx Val Ser Pro Val Gln Cys Glu Pro Lys Lys
20 25 30

Gly Asp Ile Thr Val Ile Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr
35 40 45

Met Ile Val Thr Glx Trp Arg Ile Cys Met Asp Tyr Arg Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Tyr Pro Val Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Asp Arg Leu Ala Gly Glu Glx Tyr Tyr Cys Phe Leu Asn Gly Tyr
85 90 95

Leu Arg Tyr Asn Gln Ile Val Ile Ser Pro Lys Asp Glx Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Phe Lys Lys Ile Pro Phe
115 120 125

Gly Leu Glx Asn Ala Ser Ala Thr Phe Gln Glx Cys Met Met Ala Ile
130 135 140

Phe His Asp Met Val Glu Asp Phe Val Glu Ile Phe Met Asn Asp Phe
145 150 155 160

Ser Val Phe Gly Asp Ser Phe Asp Met Cys Leu Glu Asn Leu Asp Ser
165 170 175

Val Leu Ala Ser Cys Glu Glu Thr Asn Leu Phe Leu Asn Trp Glu Glx
180 185 190

Glx Gln Phe Leu Val Lys Glu Gly Ile Met Leu Gly His Lys Val Ser
195 200 205

Lys Arg Gly Met Glu Val Asp Ser Ala Lys Val Glu Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Ile Ser Val Lys Gly Met Gln Ser Phe Leu Gly His
225 230 235 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 98
<211> 689
<212> DNA
<213> Lycopersicon esculentum

<400> 98
cgaaaggagg tggtgaaact ggaaattatc aagtagttgg atgctagagt aatctatcca 60
atcgccgata gtagttgggt atgcctagtt cagtgtgtac caaagaaagg gggaatgact 120
gtggtcccca acgaaaagaa tgaacttgtt cgaatgagac cggttactgg atggagggtg 180

tgcatggatt accgtaaact gaactcatag actgaaaaag actattttca tatgcccttc 240
atggatcaga tgttggatag acttgccgga aaagggtggt attgttttct tgatgggtat 300
tcggggtata atcagatttc tattgcacca gaagatcaag agaaaaccac tttcacttgt 360
ccatacggga cttttgcatt cagaagaatg tcgtttgggt tgtgcaatgc acccgcaacc 420
tttcagagat ggatgatgtc aatattttct gacatgatgg aggatactat agaggttttt 480
atggatgatt tttctgtggt tggtgattca ttcgagcggt gcttgtccaa tttatctgag 540
gttcttaaga gatgtgaaga ctgcaatttg gtactaaact gggaaaagtg tcatttcatg 600
gtgaaagagg gtattgtgtt gggtcatcgc atttcagaaa agggcatgca tgtttttact 660
ggtgattcat caaagacttc acaaaggtt 689

<210> 99
<211> 229
<212> PRT
<213> Lycopersicon esculentum

<400> 99
Arg Lys Glu Val Val Lys Leu Glu Ile Ile Lys Glx Leu Asp Ala Arg
1 5 10 15

Val Ile Tyr Pro Ile Ala Asp Ser Ser Trp Val Cys Leu Val Gln Cys
20 25 30

Val Pro Lys Lys Gly Gly Met Thr Val Val Pro Asn Glu Lys Asn Glu
35 40 45

Leu Val Arg Met Arg Pro Val Thr Gly Trp Arg Val Cys Met Asp Tyr
50 55 60

Arg Lys Leu Asn Ser Glx Thr Glu Lys Asp Tyr Phe His Met Pro Phe
65 70 75 80

Met Asp Gln Met Leu Asp Arg Leu Ala Gly Lys Gly Trp Tyr Cys Phe
85 90 95

Leu Asp Gly Tyr Ser Gly Tyr Asn Gln Ile Ser Ile Ala Pro Glu Asp
100 105 110

Gln Glu Lys Thr Thr Phe Thr Cys Pro Tyr Gly Thr Phe Ala Phe Arg
115 120 125

Arg Met Ser Phe Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Trp
130 135 140

Met Met Ser Ile Phe Ser Asp Met Met Glu Asp Thr Ile Glu Val Phe
145 150 155 160

Met Asp Asp Phe Ser Val Val Gly Asp Ser Phe Glu Arg Cys Leu Ser
165 170 175

Asn Leu Ser Glu Val Leu Lys Arg Cys Glu Asp Cys Asn Leu Val Leu
180 185 190

Asn Trp Glu Lys Cys His Phe Met Val Lys Glu Gly Ile Val Leu Gly
195 200 205

His Arg Ile Ser Glu Lys Gly Met His Val Phe Thr Gly Asp Ser Ser

210 215 220

Lys Thr Ser Gln Arg
225

<210> 100
<211> 760
<212> DNA
<213> Lycopersicon esculentum

<400> 100
gtgcgtaagg aggtgtttaa gcttctagat gcgggtattg tctacccaat taggacaaca 60
agtgggttag tctagtacaa tgtgtaccta aaaagggagg catggcaatg attactaatg 120
aaaacaatga gtttatccca accagcacag tcacaagatg gcgaatatgc atgaattaca 180
cgaagttaat gaagccacta ggaagaatca ttacccaatt ctttttattg attatatgtt 240
ggaccggtta gctgggcaag aatattattg ttttttggat tactaatcag ggtacaacta 300
aattttgatt gcaccagagg atcaagagaa aacaactttc acttgcccgt atggtacata 360
tgctttcaag aggatacctt ttgggttatg caatgctctg tctaatttcc aaagatgcat 420
gatgactatt tttcatgata tggttgaata ttttgaggat atattcatgg atgatttctt 480
agtgttttgg gagtcttttg atagatgctt ggagaatttg aacaggttgt tagctaggtg 540
cgaacaaact aatcttgtcc tgaactggga aaaatgtcat tttttagtaa aggaagggaa 600
tttttcgggg cataaggtgt aaaagatagg gctggaagtt gatcatgaca aagtggaagt 660
aattgaaaag atctcctctc ccatttttgt gaaacgggtg agaagtttac taggtcatgc 720
tgagttttac aggatattca tcaaggactt ctcaaaggtt 760

<210> 101
<211> 254
<212> PRT
<213> Lycopersicon esculentum

<400> 101
Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Ile Val Tyr Pro
1 5 10 15

Ile Ser Asp Asn Lys Trp Val Ser Leu Val Gln Cys Val Pro Lys Lys
20 25 30

Gly Gly Met Ala Met Ile Thr Asn Glu Asn Asn Glu Phe Ile Pro Thr
35 40 45

Ser Thr Val Thr Arg Trp Arg Ile Cys Met Asn Tyr Thr Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asn His Tyr Pro Ile Leu Phe Ile Asp Tyr Met
65 70 75 80

Leu Asp Arg Leu Ala Gly Gln Glu Tyr Tyr Cys Phe Leu Asp Tyr Glx
85 90 95

Ser Gly Tyr Asn Glx Ile Leu Ile Ala Pro Glu Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Phe Lys Arg Ile Pro Phe
115 120 125

```
Gly Leu Cys Asn Ala Leu Ser Asn Phe Gln Arg Cys Met Met Thr Ile
    130                 135                 140

Phe His Asp Met Val Glu Tyr Phe Glu Asp Ile Phe Met Asp Asp Phe
145                 150                 155                 160

Leu Val Phe Trp Glu Ser Phe Asp Arg Cys Leu Glu Asn Leu Asn Arg
                165                 170                 175

Leu Leu Ala Arg Cys Glu Gln Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Leu Val Lys Glu Gly Asn Phe Ser Gly His Lys Val Glx
        195                 200                 205

Lys Ile Gly Leu Glu Val Asp His Asp Lys Val Glu Val Ile Glu Lys
    210                 215                 220

Ile Ser Ser Pro Ile Phe Val Lys Arg Val Arg Ser Leu Leu Gly His
225                 230                 235                 240

Ala Glu Phe Tyr Arg Ile Phe Ile Lys Asp Phe Ser Lys Val
                245                 250
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<210> 102
<211> 776
<212> DNA
<213> Lycopersicon esculentum

<400> 102
gtgcggaaag aagtgtttaa actggaatca ttaaatggtt ggatgctgga gtaatatatc 60
cgatctccga tagtagttgg gtatgcccta ttcagtgtgt acctaagaaa gggggaatga 120
ctgtggtccc caataagaaa aatgaacttg ttctaatgag accggttact ggagggtggg 180
tgtgtatgga ttaccgtaaa ttaaatgcat ggactgaaaa agaccatttt cctatgccct 240
tcatggatca gatgttggat agacttgccg aaaaagggtg gtactgtttt cttgatggat 300
agtcagggta taattagatt tctattgcac cagaagatca agagaaaacc acatttactt 360
gtccatatgg gacctttgca ttgaagagaa tgtcgtttgg gttgtgcaat gcacccgcca 420
catttcacag atgtaaaaat gttgatattc ttcgacatgg tggatgatac tattgatgct 480
tttatggatg atttttctct tgttggtgaa tcattcgaga ggtgtttgaa ccatttatct 540
gatgtcctta agagatgtga agactgcaat ttagtactaa attgggaaaa atgccacttc 600
atggtgaaaa aaggtattgt tttgggtcat cgcattccag aaaagggcat agaggttgat 660
cgagctaaag tagaggtaat agagagactt cccccactat ctctgtaaaa ggtgtgagaa 720
gctttcttgg gcatgcaagt ttttaccgga gattcatcaa agacttcaca aaagtt 776

<210> 103
<211> 258
<212> PRT
<213> Lycopersicon esculentum

<400> 103
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Ala Glu Arg Ser Val Glx Thr Gly Ile Ile Lys Trp Leu Asp Ala Gly
  1               5                  10                  15

Val Ile Tyr Pro Ile Ser Asp Ser Ser Trp Val Cys Pro Ile Gln Cys
            20                  25                  30
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Val Pro Lys Lys Gly Gly Met Thr Val Val Pro Asn Lys Lys Asn Glu
35 40 45

Leu Val Leu Met Arg Pro Val Thr Gly Gly Trp Val Cys Met Asp Tyr
50 55 60

Arg Lys Leu Asn Ala Trp Thr Glu Lys Asp His Phe Pro Met Pro Phe
65 70 75 80

Met Asp Gln Met Leu Asp Arg Leu Ala Glu Lys Gly Trp Tyr Cys Phe
85 90 95

Leu Asp Gly Glx Ser Gly Tyr Asn Glx Ile Ser Ile Ala Pro Glu Asp
100 105 110

Gln Glu Lys Thr Thr Phe Thr Cys Pro Tyr Gly Thr Phe Ala Leu Lys
115 120 125

Arg Met Ser Phe Gly Leu Cys Asn Ala Pro Ala Thr Phe His Arg Cys
130 135 140

Lys Met Leu Ile Phe Phe Asp Met Val Asp Asp Thr Ile Asp Ala Phe
145 150 155 160

Met Asp Asp Phe Ser Leu Val Gly Glu Ser Phe Glu Arg Cys Leu Asn
165 170 175

His Leu Ser Asp Val Leu Lys Arg Cys Glu Asp Cys Asn Leu Val Leu
180 185 190

Asn Trp Glu Lys Cys His Phe Met Val Lys Lys Gly Ile Val Leu Gly
195 200 205

His Arg Ile Pro Glu Lys Gly Ile Glu Val Asp Arg Ala Lys Val Glu
210 215 220

Val Ile Glu Arg Leu Pro Pro Pro Ile Ser Val Lys Gly Val Arg Ser
225 230 235 240

Phe Leu Gly His Ala Ser Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr
245 250 255

Lys Val

<210> 104
<211> 761
<212> DNA
<213> Solanum tuberosum

<400> 104
gtgcggaagg aggtacttaa attgttggat gcacggattg tgtacccaat atcagacagt 60
aaatgggtaa gtccagtaaa gtgtgtgccc aagaagggca gaatgacggt gttgactaat 120
gagaagaatg aggtaatccc cacaagaaca gtgactgggt gacggatttg catggactac 180
atgaagttga acgacgccac cagaaaggac cattatccgg tacctttcat tgataaaata 240

ttggataggt tggcaggaca tgagtactat tgttttcttg gtgtctactc agggtacaat 300
cagattgtta ttgcaataga ggactaggtg aaaaccacct tcacctgttc gtatggcaca 360
tatgcgttca agcacatgcc attcggcttg tgcaatgccc tggccacatt tcagagatgc 420
atgttggcaa tcttccatga tatggtggag gattttgttg aagttttcat ggatgacttc 480
ttggtgtttg gtgagtcttt tgaactttgt ttgactaatt ttgacagatt tcttgctagg 540
tgtgaagaga cgaatctggt gataaactga tagaagtgtc actttctggt tcgagaggga 600
attgtgttgg gacacaagat ctccaaaaat gggctgaaag ttgacaaagc caacgtagag 660
gttattgaga aattgccacc cccatcacag tgaaggtaat taaaagctta ctaggacatg 720
cttggtttta tacgaggttc atcaaagact tcacaaaggt t 761

<210> 105
<211> 254
<212> PRT
<213> Solanum tuberosum

<400> 105
Val Arg Lys Glu Val Leu Lys Leu Leu Asp Ala Arg Ile Val Tyr Pro
1 5 10 15

Ile Ser Asp Ser Lys Trp Val Ser Pro Val Lys Cys Val Pro Lys Lys
20 25 30

Gly Arg Met Thr Val Leu Thr Asn Glu Lys Asn Glu Val Ile Pro Thr
35 40 45

Arg Thr Val Thr Gly Glx Arg Ile Cys Met Asp Tyr Met Lys Leu Asn
50 55 60

Asp Ala Thr Arg Lys Asp His Tyr Pro Val Pro Phe Ile Asp Lys Ile
65 70 75 80

Leu Asp Arg Leu Ala Gly His Glu Tyr Tyr Cys Phe Leu Gly Val Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Val Ile Ala Ile Glu Asp Glx Val Lys Thr
100 105 110

Thr Phe Thr Cys Ser Tyr Gly Thr Tyr Ala Phe Lys His Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Leu Ala Thr Phe Gln Arg Cys Met Leu Ala Ile
130 135 140

Phe His Asp Met Val Glu Asp Phe Val Glu Val Phe Met Asp Asp Phe
145 150 155 160

Leu Val Phe Gly Glu Ser Phe Glu Leu Cys Leu Thr Asn Phe Asp Arg
165 170 175

Phe Leu Ala Arg Cys Glu Glu Thr Asn Leu Val Ile Asn Glx Glx Lys
180 185 190

Cys His Phe Leu Val Arg Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Lys Asn Gly Leu Lys Val Asp Lys Ala Asn Val Glu Val Ile Glu Lys

210 215 220

Leu Pro Pro Pro Ile Thr Val Lys Val Ile Lys Ser Leu Leu Gly His
225 230 235 240

Ala Trp Phe Tyr Thr Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 106
<211> 760
<212> DNA
<213> Solanum tuberosum

<400> 106
gtgcgtaaag aggttttcaa actgctagat gtcggtattg tatatccgat ttcagaaagc 60
aaatgggtca gcccagttta gtgtgtgcct aaaaaaagag gcatgccggt gatcaccaat 120
gaaaaaaatg agttgattcc aaccaggaca gtgacagggt ggcgaatatg catggattat 180
aggaaattga atgaggccac cagaaaggat cactgcccgg ttccttttat tgatcagatg 240
ctggacaggt tagttgggca agaatattat tgtttcctgg aaggctattc aggatacaac 300
caaattgtga ttgcaccaga ggaccaggag aaaactacat tcacttgtct gtatgggaca 360
tatgctttca agtgactgcc gtttgggcta tgcaatgctc cagccacctt ccaaagatga 420
atgatggcta tctttcatga tatggttgaa gattttgtgg agatattcat ggatgacttc 480
tcagtcttta gggagtcttt tgataggtgt ttggagaatt gggacagggt gctggctaga 540
tgcgaggaaa ctaatctcat cctaaactgg aaaaaatgtc atttcctagt aaatgaaggg 600
attgtattgg gccataaggt gtcaaagaga gggctggaag ttgatcgtgc caaagtggaa 660
gttattgaaa aactacctcc tccaatctgt taaaggggtg agaagctttc tgggtcatgc 720
tggtttttac aggagattta taaaggactt cacaaaggtt 760

<210> 107
<211> 254
<212> PRT
<213> Solanum tuberosum

<400> 107
Val Arg Lys Glu Val Phe Lys Leu Leu Asp Val Gly Ile Val Tyr Pro
1 5 10 15

Ile Ser Glu Ser Lys Trp Val Ser Pro Val Glx Cys Val Pro Lys Lys
20 25 30

Arg Gly Met Pro Val Ile Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr
35 40 45

Arg Thr Val Thr Gly Trp Arg Ile Cys Met Asp Tyr Arg Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Cys Pro Val Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Asp Arg Leu Val Gly Gln Glu Tyr Tyr Cys Phe Leu Glu Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Val Ile Ala Pro Glu Asp Gln Glu Lys Thr
100 105 110

```
Thr Phe Thr Cys Leu Tyr Gly Thr Tyr Ala Phe Lys Glx Leu Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Glx Met Met Ala Ile
    130                 135                 140

Phe His Asp Met Val Glu Asp Phe Val Glu Ile Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Phe Arg Glu Ser Phe Asp Arg Cys Leu Glu Asn Trp Asp Arg
                165                 170                 175

Val Leu Ala Arg Cys Glu Glu Thr Asn Leu Ile Leu Asn Trp Lys Lys
            180                 185                 190

Cys His Phe Leu Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
        195                 200                 205

Lys Arg Gly Leu Glu Val Asp Arg Ala Lys Val Glu Val Ile Glu Lys
    210                 215                 220

Leu Pro Pro Pro Ile Ser Val Lys Gly Val Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 108
<211> 761
<212> DNA
<213> Solanum tuberosum

<400> 108
gtgcgtaaag aggttttcaa gctctggatg caggtattgt ctatccaatt tcagacagca 60
agtgggtcag tccagttcag tgtgtgccta aaaagggagg catgacggtg atcactaatg 120
aaaaaaatga gttgattcca accaggacag tgacaggatg gcgaatatgc atggattaca 180
gaaaattaaa tgaagctacc agaaaggatc actacccggt tccttttatt gatcagatgc 240
tggacaggtt ggctggacaa gaatattatt gtttcttgga tggttattca ggatacaacc 300
aaatagtgat tgcaccagag gaccagggga aaactacatt cacttgcttg tatgggacat 360
atgtttccaa gagaatgtcg tttgggctat gcaatgctcc atccattttc caaagatgca 420
tgatggccat cttccatgat aaggttgaag attttatgga aatattcatg gatgacttct 480
cagtatttgg ggagtctttt gacaggtgct tggagaattt agacagagtg ttggctagat 540
gcgaggaaac taattttgtc ctaaactggg aaaaatgtca tttcctagtg aaggaaggga 600
ttgtgttggg tcataaggtg tcaaagagag ggctggaagt tgatcgtgcc agagtggaaa 660
taatcaaaaa gctacctccc ccaatttctg ttaaaggggt gcgaagtttt ttgggtcatg 720
ttagtttcta cgaaagattc ataaaggact tcaccaaggt t 761

<210> 109
<211> 254
<212> PRT
<213> Solanum tuberosum

<400> 109
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Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Ile Val Tyr Pro
  1               5                  10                  15
```

```
Ile Ser Asp Ser Lys Trp Val Ser Pro Val Gln Cys Val Pro Lys Lys
            20                  25                  30

Gly Gly Met Thr Val Ile Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr
        35                  40                  45

Arg Thr Val Thr Gly Trp Arg Ile Cys Met Asp Tyr Arg Lys Leu Asn
    50                  55                  60

Glu Ala Thr Arg Lys Asp His Tyr Pro Val Pro Phe Ile Asp Gln Met
65                  70                  75                  80

Leu Asp Arg Leu Ala Gly Gln Glu Tyr Tyr Cys Phe Leu Asp Gly Tyr
                85                  90                  95

Ser Gly Tyr Asn Gln Ile Val Ile Ala Pro Glu Asp Gln Gly Lys Thr
            100                 105                 110

Thr Phe Thr Cys Leu Tyr Gly Thr Tyr Val Ser Lys Arg Met Ser Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ser Ile Phe Gln Arg Cys Met Met Ala Ile
    130                 135                 140

Phe His Asp Lys Val Glu Asp Phe Met Glu Ile Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Phe Gly Glu Ser Phe Asp Arg Cys Leu Glu Asn Leu Asp Arg
                165                 170                 175

Val Leu Ala Arg Cys Glu Glu Thr Asn Phe Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Leu Val Lys Glu Gly Ile Val Leu Gly His Lys Val Ser
        195                 200                 205

Lys Arg Gly Leu Glu Val Asp Arg Ala Arg Val Glu Ile Ile Lys Lys
    210                 215                 220

Leu Pro Pro Pro Ile Ser Val Lys Gly Val Arg Ser Phe Leu Gly His
225                 230                 235                 240

Val Ser Phe Tyr Glu Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 110
<211> 762
<212> DNA
<213> Solanum tuberosum

<400> 110
gtgcgtaagg aggtcctcaa gctgtctgat gcaggaattg tgtaccccat ttatgatata 60
aagtggatca gcccagttca ctgtgtgccg aaaaagggag gcatgacgat tattactaat 120
gaaaagaagg agttgatttc agctagaacg gtgatagagt ggcacatatg aatggactat 180
aggagactaa atgaggcaac tagaaaggaa cactacccag ttcctttcat tgatcaaatg 240

ttggacaggt ttattgggca agagtattat tgtttcctag atggctattc aggatataat 300
caaattgtga ttgcgccata agataaagag aaaactacat ttacttctct atatgggaca 360
tatgccttca agagaatgtc gtttgggccg tgcaatgctc caaccacatt ccaaagatgc 420
atgacagcca tttttcatga tatggtcaaa tattttgtgg agatattcat ggatgaattc 480
ttagtctttg gggagtcttt tgacacgtgt ctagaatatt tggacaatgt gcttgccaga 540
tgtgaggaaa ctaatcccgt cctcaactgg gaaaaatgtc attttctagt gaagaagggg 600
attgtactag gccacaaggt ttcagaggaa ggactggaag ttgatcgtgg aaaagtagag 660
gtaatttaaa agctaccccc tcaagtcttc gttaaagggg tgagaaggtt ccttggtcat 720
tctaggttcg aaatgagatt cataaaagac ttcacaaaag tt 762

<210> 111
<211> 254
<212> PRT
<213> Solanum tuberosum

<400> 111
Val Arg Lys Glu Val Leu Lys Leu Ser Asp Ala Gly Ile Val Tyr Pro
1 5 10 15

Ile Tyr Asp Ile Lys Trp Ile Ser Pro Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Ile Ile Thr Asn Glu Lys Lys Glu Leu Ile Ser Ala
35 40 45

Arg Thr Val Ile Glu Trp His Ile Glx Met Asp Tyr Arg Arg Leu Asn
50 55 60

Glu Ala Thr Arg Lys Glu His Tyr Pro Val Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Asp Arg Phe Ile Gly Gln Glu Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Val Ile Ala Pro Glx Asp Lys Glu Lys Thr
100 105 110

Thr Phe Thr Ser Leu Tyr Gly Thr Tyr Ala Phe Lys Arg Met Ser Phe
115 120 125

Gly Pro Cys Asn Ala Pro Thr Thr Phe Gln Arg Cys Met Thr Ala Ile
130 135 140

Phe His Asp Met Val Lys Tyr Phe Val Glu Ile Phe Met Asp Glu Phe
145 150 155 160

Leu Val Phe Gly Glu Ser Phe Asp Thr Cys Leu Glu Tyr Leu Asp Asn
165 170 175

Val Leu Ala Arg Cys Glu Glu Thr Asn Pro Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Leu Val Lys Lys Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Glu Glu Gly Leu Glu Val Asp Arg Gly Lys Val Glu Val Ile Glx Lys

210 215 220

Leu Pro Pro Gln Val Phe Val Lys Gly Val Arg Arg Phe Leu Gly His
225 230 235 240

Ser Arg Phe Glu Met Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 112
<211> 762
<212> DNA
<213> Solanum tuberosum

<400> 112
gtgcggaagg aggtttttaa gctgctggat gcgggtattg tataccagat ttcagatagc 60
aaaggggtct acccgattta gtttgtgcct aaaaaatgca gcatgacagt gatcaccaat 120
gaaaagaatg agctgattcc aaccaggaca gtgacagggt ggcgaatatg catggattat 180
atgaagttga atgaggccac cagaaaggat cactacccga ttcattttat tgatcagatg 240
ttggacaagt tagctgagta aaaatattat tgtttcttgg cttgttattc aagatacaac 300
caatttctca ttgcaccaca ggaccaggag gaaactacat tcacttgtcc ttatgggaca 360
tatgctttca agcgaatgtc gtttgggcta tgcaatgctc caaccacctt ccaaagatgc 420
ataagggcta tctttcatga tatggttgaa gattttgtgg agatattcat ggatgacttc 480
tcagtctttg ggtagtcttt tgagaggtgt ctggaaaatt ttgacagggt gctggctgta 540
tgcgaggaaa ctaatttttt cctaaactgg gaaaaatgtc attttctagt gaaggaaggg 600
attgtattgg gacataaggt gtcaaagtga aggcttgaag ttgatcgtgc caaagtggaa 660
gtcgttgaaa acctaccttc cccattctct gttaaagggg tgagaagttt tttgggtcat 720
gctggtttct ataggagatt tatcaaagac ttcactaagg tt 762

<210> 113
<211> 254
<212> PRT
<213> Solanum tuberosum

<400> 113
Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Ile Val Tyr Gln
1 5 10 15

Ile Ser Asp Ser Lys Gly Val Tyr Pro Ile Glx Phe Val Pro Lys Lys
20 25 30

Cys Ser Met Thr Val Ile Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr
35 40 45

Arg Thr Val Thr Gly Trp Arg Ile Cys Met Asp Tyr Met Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Tyr Pro Ile His Phe Ile Asp Gln Met
65 70 75 80

Leu Asp Lys Leu Ala Glu Glx Lys Tyr Tyr Cys Phe Leu Ala Cys Tyr
85 90 95

Ser Arg Tyr Asn Gln Phe Leu Ile Ala Pro Gln Asp Gln Glu Glu Thr
100 105 110

```
Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Phe Lys Arg Met Ser Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Gln Arg Cys Ile Arg Ala Ile
    130                 135                 140

Phe His Asp Met Val Glu Asp Phe Val Glu Ile Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Phe Gly Glx Ser Phe Glu Arg Cys Leu Glu Asn Phe Asp Arg
                165                 170                 175

Val Leu Ala Val Cys Glu Glu Thr Asn Phe Phe Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Leu Val Lys Glu Gly Ile Val Leu Gly His Lys Val Ser
        195                 200                 205

Lys Glx Arg Leu Glu Val Asp Arg Ala Lys Val Glu Val Val Glu Asn
    210                 215                 220

Leu Pro Ser Pro Phe Ser Val Lys Gly Val Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 114
<211> 793
<212> DNA
<213> Solanum tuberosum

<400> 114

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aacttttgtg aagtctttaa tgaaggatgt tgtcagagaa gaagtcatca agtggctgga 60
tacagggatt gtgtacccaa tatctgacaa taaatgggca agtccagtgc agtgtgtgcc 120
taaaaaggga ggaatgacag ttgtgaccaa tgagaaaaat gagttgatcc ccacaagaac 180
agtaactggg tggaggctat gcatggacta cagaaaactc aatgaagcca ccaggaagga 240
ccactattcg gtaccgttca ttgatcaaat gttagacagg ttggctggcc aagagtatta 300
ctgtttcctt gatggttatt caaggtataa ttagatcgtc attgcacctg aggatcaaga 360
gaatacgaca ttcacttgcc catatggcac gtatgcattc aaacgcttgc cattcggctt 420
gtgcaatgcc ccaaccctat ttcagagatg tatgatggca atcttccatg atatggtgga 480
agattttgtt aaagtataca tggacgattt ctcggtgttt ggtgagtcgt tcgaactttg 540
tttatctaat cgtgatagag ttcttactag gtgtgaggag accaatttgg tgctgaactg 600
ggagaagtgt cactttctgg tcagagaagg aattatgttg gggcagaaga tctccaaaag 660
tgggctagaa gtagacaagg cgaaggtgga agtgattgag aagttgccac caccaatata 720
agtaaaggga gtgcgaagct tccttggaca tgctggtttt tacaagaggt tcataaagga 780
cttttcaaag gtt                                                    793
```

<210> 115
<211> 264
<212> PRT
<213> Solanum tuberosum

<400> 115

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Thr Phe Val Lys Ser Leu Met Lys Asp Val Val Arg Glu Glu Val Ile
```

1 5 10 15

Lys Trp Leu Asp Thr Gly Ile Val Tyr Pro Ile Ser Asp Asn Lys Trp
20 25 30

Ala Ser Pro Val Gln Cys Val Pro Lys Lys Gly Gly Met Thr Val Val
35 40 45

Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr Arg Thr Val Thr Gly Trp
50 55 60

Arg Leu Cys Met Asp Tyr Arg Lys Leu Asn Glu Ala Thr Arg Lys Asp
65 70 75 80

His Tyr Ser Val Pro Phe Ile Asp Gln Met Leu Asp Arg Leu Ala Gly
85 90 95

Gln Glu Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser Arg Tyr Asn Glx Ile
100 105 110

Val Ile Ala Pro Glu Asp Gln Glu Asn Thr Thr Phe Thr Cys Pro Tyr
115 120 125

Gly Thr Tyr Ala Phe Lys Arg Leu Pro Phe Gly Leu Cys Asn Ala Pro
130 135 140

Thr Leu Phe Gln Arg Cys Met Met Ala Ile Phe His Asp Met Val Glu
145 150 155 160

Asp Phe Val Lys Val Tyr Met Asp Asp Phe Ser Val Phe Gly Glu Ser
165 170 175

Phe Glu Leu Cys Leu Ser Asn Arg Asp Arg Val Leu Thr Arg Cys Glu
180 185 190

Glu Thr Asn Leu Val Leu Asn Trp Glu Lys Cys His Phe Leu Val Arg
195 200 205

Glu Gly Ile Met Leu Gly Gln Lys Ile Ser Lys Ser Gly Leu Glu Val
210 215 220

Asp Lys Ala Lys Val Glu Val Ile Glu Lys Leu Pro Pro Pro Ile Glx
225 230 235 240

Val Lys Gly Val Arg Ser Phe Leu Gly His Ala Gly Phe Tyr Lys Arg
245 250 255

Phe Ile Lys Asp Phe Ser Lys Val
260

<210> 116
<211> 761
<212> DNA
<213> Platanus occidentalis

<400> 116

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gtgcgtaagg aggttttcaa acttcttaaa gtttgagtga tttatcctat ttaggatagg 60
aattgggtca gcccggttca agtggttcct aaaaagattg gaataaccgt tgtgaaaaat 120
tagaatgatg agttggttcc taccagtgtt cagaatgggt ggagggttgt atagattata 180
gaaaattgaa tgttgtaacc cgcaaggatc acttcccttt acctttttatt gatcaaatgc 240
ttgaaaggtt agttggtcat tcttactatt gtttcctaga tggttattca agttatttcc 300
agattgtaat tactccagag gattaagaaa agacaacttt tacatgtcca tttgggactt 360
ttgcatatcg ttgcatgccc tttggccttt gcaatgcccc aaccactttc caaaggtgta 420
tggttagcat attttcatat tacattgaga atatcataga agtttttatg gatgatttca 480
tagtttatgg agactccttt aataattttc tgcataacct tacacttgtt cttcaaagat 540
gcatagaaac taaccttgtg ttaaattatg aaaaatgtca ttttatggtt gaacaaggta 600
tagttttggg tcatgttatt tcatctaaag gaattgaggt agataaagct aaagttgata 660
ttattcaatc tttaccttat ctcattagta tgcggaaagt tcattctttt cttggacatg 720
caggtttcta ccgaagattc attaaagact ttacaaaggt t                     761
```

<210> 117
<211> 254
<212> PRT
<213> Platanus occidentalis

<400> 117

```
Val Arg Lys Glu Val Phe Lys Leu Leu Lys Val Glx Val Ile Tyr Pro
  1               5                  10                  15

Ile Glx Asp Arg Asn Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
            20                  25                  30

Ile Gly Ile Thr Val Val Lys Asn Glx Asn Asp Glu Leu Val Pro Thr
        35                  40                  45

Ser Val Gln Asn Gly Trp Arg Val Cys Ile Asp Tyr Arg Lys Leu Asn
    50                  55                  60

Val Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
65                  70                  75                  80

Leu Glu Arg Leu Val Gly His Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
                85                  90                  95

Ser Ser Tyr Phe Gln Ile Val Ile Thr Pro Glu Asp Glx Glu Lys Thr
            100                 105                 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Cys Met Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Gln Arg Cys Met Val Ser Ile
    130                 135                 140

Phe Ser Tyr Tyr Ile Glu Asn Ile Ile Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ile Val Tyr Gly Asp Ser Phe Asn Asn Phe Leu His Asn Leu Thr Leu
                165                 170                 175

Val Leu Gln Arg Cys Ile Glu Thr Asn Leu Val Leu Asn Tyr Glu Lys
            180                 185                 190
```

```
Cys His Phe Met Val Glu Gln Gly Ile Val Leu Gly His Val Ile Ser
        195                 200                 205

Ser Lys Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ile Ile Gln Ser
    210                 215                 220

Leu Pro Tyr Leu Ile Ser Met Arg Lys Val His Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 118
<211> 762
<212> DNA
<213> Platanus occidentalis

<400> 118
gtgcgtaagg aagttttcaa gcttcttgaa gttggagtga tttatcttat ttcgaatagc 60
aattgggtta gcccagttca agtggctcct aaaaagactg gaataaccgt tgtgaaaaat 120
cagaatgatg agttagttcc tacccatgtt cagaatgggt ggtgggtttg tataaattat 180
agaaaattaa atgttataac ctgcaaggat cacttccctt tacctttat tgataaaatg 240
cttgaaaggt tagctggtca ttcttactat tgtttccttg atggttattt aggttatttt 300
caaattgcaa ttacttcgga ggatcaagaa aagatgattt ttaagtgccc attcgggact 360
tttgcatatc gtcacatgcc ctttggcctt tgcaatgccc caaccacttt ctaaaggtgt 420
atggttagca tattttcaga ttacattgag aatatcatag aagtctttat ggatgatttc 480
acagtttatg gagactcctt tgataattgt ctgcataacc ttacacttgt tattcaaaga 540
tgcatagaaa ctaacctagt gttaaattct taaaaatgtc attttatggt tgaacaaggt 600
atagttttgg gtcatgttgt ttcatctagg ggaattgagg tagataaacc taaagttgat 660
attattcaaa ctttacctta ttccactagt gtgcgagaag ttcgttcttt tcttggacat 720
gtaggttttt actgaagatt cataaaagac ttcacaaagg tt 762

<210> 119
<211> 254
<212> PRT
<213> Platanus occidentalis

<400> 119
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Val Arg Lys Glu Val Phe Lys Leu Leu Glu Val Gly Val Ile Tyr Leu
  1               5                  10                  15

Ile Ser Asn Ser Asn Trp Val Ser Pro Val Gln Val Ala Pro Lys Lys
            20                  25                  30

Thr Gly Ile Thr Val Val Lys Asn Gln Asn Asp Glu Leu Val Pro Thr
        35                  40                  45

His Val Gln Asn Gly Trp Trp Val Cys Ile Asn Tyr Arg Lys Leu Asn
    50                  55                  60

Val Ile Thr Cys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Lys Met
65                  70                  75                  80

Leu Glu Arg Leu Ala Gly His Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
                85                  90                  95
```

```
Leu Gly Tyr Phe Gln Ile Ala Ile Thr Ser Glu Asp Gln Glu Lys Met
            100                 105                 110

Ile Phe Lys Cys Pro Phe Gly Thr Phe Ala Tyr Arg His Met Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Glx Arg Cys Met Val Ser Ile
    130                 135                 140

Phe Ser Asp Tyr Ile Glu Asn Ile Ile Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Thr Val Tyr Gly Asp Ser Phe Asp Asn Cys Leu His Asn Leu Thr Leu
                165                 170                 175

Val Ile Gln Arg Cys Ile Glu Thr Asn Leu Val Leu Asn Ser Glx Lys
            180                 185                 190

Cys His Phe Met Val Glu Gln Gly Ile Val Leu Gly His Val Val Ser
        195                 200                 205

Ser Arg Gly Ile Glu Val Asp Lys Pro Lys Val Asp Ile Ile Gln Thr
    210                 215                 220

Leu Pro Tyr Ser Thr Ser Val Arg Glu Val Arg Ser Phe Leu Gly His
225                 230                 235                 240

Val Gly Phe Tyr Glx Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 120
<211> 759
<212> DNA
<213> Platanus occidentalis

<400> 120
gtgcggaaag aggtttttaa gcttttggat gtagggatta tatacccaat tttttatagt 60
aattaggtaa gtcccactca agtggaccca agaattctgg tgtgactgta gttaaaaatg 120
caaatgatga attgattcca aatagactca ctattggttg gcgtgtatgc attaactata 180
agaagttgaa ctcagtgact aggaaggacc atttcccttt accattcatg actaaatcct 240
agaaagggta gctggtcaca aattttatta tttcctatat ggttattcta gatataacta 300
aatagagatt gcacctgagg actaagaaaa taccactttt acatgtccat ttggcacttt 360
tgcttatcga aggatgtcat ttggattatg taatgctctt gccacgttct aaagatgcat 420
gttgagtata tttagtgata tggtagaaca ttttcttgag gtgtttatgg attttttttg 480
tttttggtaa ttcatttgat gattgtttgc ataatttgaa aaaagtgtta aatagatgtg 540
aaggaaaaaa acatcatttt gaattgagag aagtgtcatt tcatggtctc taaaagaatt 600
gtacttggtc acattgtctc ctcccaagga attaaagtgg tcaaagccaa aattgaattg 660
atagtcaatt tgcctagccc aaagactctt aaagacattc gatcttttct aggtcatgca 720
ggatttaaca aaaggttcat caaagacttc acgaaagtt 759

<210> 121
<211> 254
<212> PRT
<213> Platanus occidentalis

<400> 121
Val Arg Lys Glu Val Phe Lys Leu Leu Asp Val Gly Ile Ile Tyr Pro
1 5 10 15

Ile Phe Tyr Ser Asn Glx Val Ser Pro Thr Gln Val Val Pro Lys Asn
20 25 30

Ser Gly Val Thr Val Val Lys Asn Ala Asn Asp Glu Leu Ile Pro Asn
35 40 45

Arg Leu Thr Ile Gly Trp Arg Val Cys Ile Asn Tyr Lys Lys Leu Asn
50 55 60

Ser Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Glx Ile
65 70 75 80

Leu Glu Arg Val Ala Gly His Lys Phe Tyr Tyr Phe Leu Tyr Gly Tyr
85 90 95

Ser Arg Tyr Asn Glx Ile Glu Ile Ala Pro Glu Asp Glx Glu Asn Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Leu Ala Thr Phe Glx Arg Cys Met Leu Ser Ile
130 135 140

Phe Ser Asp Met Val Glu His Phe Leu Glu Val Phe Met Asp Asp Phe
145 150 155 160

Phe Val Phe Gly Asn Ser Phe Asp Asp Cys Leu His Asn Leu Lys Lys
165 170 175

Val Leu Asn Arg Cys Glu Glu Lys Asn Ile Ile Leu Asn Glx Glu Lys
180 185 190

Cys His Phe Met Val Ser Lys Arg Ile Val Leu Gly His Ile Val Ser
195 200 205

Ser Gln Gly Ile Lys Val Val Lys Ala Lys Ile Glu Leu Ile Val Asn
210 215 220

Leu Pro Ser Pro Lys Thr Leu Lys Asp Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Asn Lys Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 122
<211> 761
<212> DNA
<213> Platanus occidentalis

<400> 122

```
tgcgtaaaga ggtggtcaag cttcttgaag ttggagtgat ttatcctatt tcggatagca 60
attgggttag cccggttcaa gtggttccta aaaagactgg aataaccgtt gtgaaaaatc 120
aaaatgatga gttagttcct acccgtgttc agaatgggtg gcaggtttgt atagattata 180
taaaattaaa tgttgtaacc cgcaaggatc acttcccttt acctttttatt gatcaaatgt 240
ttgaaaggtt agctggtcat tcttactatt gtttccttga tggatattca tgttattttt 300
agattgcaat tactccagag gatcaagaaa agacgacttt tacgtgccca ttcgggactt 360
tttcatatcg ttgcatgccc tttggccttt gcaacgcccc agccactttc caaaggtgta 420
tggttagcat attttcagat tacattgaga atatcataga agtctttatg gatgatttca 480
tagtttatga agactccttt gataattgtc tgcataacct tacacttgtt ttttaaagat 540
gcatagaaac taaccttgtg ttaaattttg aaaaatgtca tgttatggtt gaataaggta 600
tagttttggg tcatgttgtt tcatctatgg gaattgaggt agataaagtt aaagttgata 660
ttattcaatc tttaccttat cccattagtg tgcaggaagt tcgttctttt cttggacatg 720
cgggttttta ccaaagattc attaaagact tcacgaaagt t                     761
```

<210> 123
<211> 253
<212> PRT
<213> Platanus occidentalis

<400> 123

```
Arg Lys Glu Val Val Lys Leu Leu Glu Val Gly Val Ile Tyr Pro Ile
  1               5                  10                  15

Ser Asp Ser Asn Trp Val Ser Pro Val Gln Val Val Pro Lys Lys Thr
             20                  25                  30

Gly Ile Thr Val Val Lys Asn Gln Asn Asp Glu Leu Val Pro Thr Arg
         35                  40                  45

Val Gln Asn Gly Trp Gln Val Cys Ile Asp Tyr Ile Lys Leu Asn Val
     50                  55                  60

Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met Phe
 65                  70                  75                  80

Glu Arg Leu Ala Gly His Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser
                 85                  90                  95

Cys Tyr Phe Glx Ile Ala Ile Thr Pro Glu Asp Gln Glu Lys Thr Thr
            100                 105                 110

Phe Thr Cys Pro Phe Gly Thr Phe Ser Tyr Arg Cys Met Pro Phe Gly
        115                 120                 125

Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Val Ser Ile Phe
    130                 135                 140

Ser Asp Tyr Ile Glu Asn Ile Ile Glu Val Phe Met Asp Asp Phe Ile
145                 150                 155                 160

Val Tyr Glu Asp Ser Phe Asp Asn Cys Leu His Asn Leu Thr Leu Val
                165                 170                 175

Phe Glx Arg Cys Ile Glu Thr Asn Leu Val Leu Asn Phe Glu Lys Cys
            180                 185                 190
```

```
His Val Met Val Glu Glx Gly Ile Val Leu Gly His Val Val Ser Ser
        195                 200                 205

Met Gly Ile Glu Val Asp Lys Val Lys Val Asp Ile Ile Gln Ser Leu
    210                 215                 220

Pro Tyr Pro Ile Ser Val Gln Glu Val Arg Ser Phe Leu Gly His Ala
225                 230                 235                 240

Gly Phe Tyr Gln Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 124
<211> 761
<212> DNA
<213> Sorghum bicolor

<400> 124
gtgcgtaaag aggtcttcaa gctctatcat gctgggatta tttatcctgt gccgcatagt 60
gagtgggtta gccctgttca agtagtgcca aagaaaggag gaatgacggt cgttaggaat 120
gagaagaatg aactcatccc tcaacgaatt gtcactgggt ggcgtatgtg tattgactat 180
caaaaactca acacggctac aaagaaagat aactttccgt taccttcat tgatgaaatg 240
ttggaacggc ttgcaaacca ctctttcttc tgtttccttg atggttattc tggatatcac 300
caaatcccaa tccacccaga tgaccaagaa aagactacct ttacatgccc gtatggaact 360
tatgcataac gacgaatgtc gttcggactg tgcaatgctc cagcttcttt ccaacggtgc 420
atgatgtcta ttttctcgga catgattgag aagatcatgg aggttttcat ggatgatttt 480
accgtctatg gtaaaacctt cgatcattgt ttggagaatt tagatagagt cttgcagcga 540
tgtgaagaaa agcacttaat cctgaactgg gagaaatgcc attttatggt tcaggaagga 600
atagtgctag gacataaagt gtccgaacgt ggtatagagg tggacaaagc aaagattgaa 660
gttattgaaa aacttccacc tcccacgaat gtgaaaggat ccgtagcttc ttgggacatg 720
cagggttcta tagatgcttc ataaaagact tcacaaaggt t 761

<210> 125
<211> 254
<212> PRT
<213> Sorghum bicolor

<400> 125
```
Val Arg Lys Glu Val Phe Lys Leu Tyr His Ala Gly Ile Ile Tyr Pro
  1               5                  10                  15

Val Pro His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
             20                  25                  30

Gly Gly Met Thr Val Val Arg Asn Glu Lys Asn Glu Leu Ile Pro Gln
         35                  40                  45

Arg Ile Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Gln Lys Leu Asn
     50                  55                  60

Thr Ala Thr Lys Lys Asp Asn Phe Pro Leu Pro Phe Ile Asp Glu Met
 65                  70                  75                  80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
                 85                  90                  95
```

```
Ser Gly Tyr His Gln Ile Pro Ile His Pro Asp Asp Gln Glu Lys Thr
            100                 105                 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Glx Arg Arg Met Ser Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
    130                 135                 140

Phe Ser Asp Met Ile Glu Lys Ile Met Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Thr Val Tyr Gly Lys Thr Phe Asp His Cys Leu Glu Asn Leu Asp Arg
                165                 170                 175

Val Leu Gln Arg Cys Glu Glu Lys His Leu Ile Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Val Ser
        195                 200                 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Glu Val Ile Glu Lys
    210                 215                 220

Leu Pro Pro Pro Thr Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Cys Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 126
<211> 762
<212> DNA
<213> Sorghum bicolor

<400> 126
gtgcggaagg aggtccttaa attgctgcat gcagggatta tatatcctgt gccgcacagt 60
gagtgggtga gcccagtaca agttgtgcct aaaaaaggag gcatgactgt tattataaat 120
gaaaagaacg agctaattcc gcaacgcacc gtcacaggat ggcagatgtg catagactat 180
agaaaactaa acaaagccac gagaaaggat cactttcctt tacctttat agatgagatg 240
ctagagcggt tagcaaacca ttcgttcttc tgtttcttag atggatattc agggtatcat 300
cagatcccga tccatcccga tgatcaaagc aaaaccactt ttacatgccc ttatggaact 360
tatgcttacc gtagaatgtc ttttgggtta tgtaatgcac cagcttcttt tcaaagatgc 420
atgatgtcta tattttctga tatgattgaa gagattatgg aagttttcat ggatgatttc 480
tctgtttatg gaaaagcttt tgatagttgt cttgaaaact tagacaaggt tttgcaaagt 540
tgtgaagaaa agcacttaat ccttaattgg gaaaaatgtc attttatggt tagggaagga 600
atagtgctag gacacttagt gtctgaaagg ggtattgagg tagacaaagc tgaaattgaa 660
gtaattgaac aactacctcc acctgtgaat ataaaaggaa ttcgaagctt tcttggccat 720
gctggttttt atcgtagatt catcaaagat ttcacgaaag tt 762

<210> 127
<211> 254
<212> PRT
<213> Sorghum bicolor

<400> 127
Val Arg Lys Glu Val Leu Lys Leu Leu His Ala Gly Ile Ile Tyr Pro
1 5 10 15

Val Pro His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Ile Ile Asn Glu Lys Asn Glu Leu Ile Pro Gln
35 40 45

Arg Thr Val Thr Gly Trp Gln Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr His Gln Ile Pro Ile His Pro Asp Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
130 135 140

Phe Ser Asp Met Ile Glu Glu Ile Met Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Lys Ala Phe Asp Ser Cys Leu Glu Asn Leu Asp Lys
165 170 175

Val Leu Gln Ser Cys Glu Glu Lys His Leu Ile Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Leu Val Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Glu Ile Glu Val Ile Glu Gln
210 215 220

Leu Pro Pro Pro Val Asn Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 128
<211> 762
<212> DNA
<213> Sorghum bicolor

<400> 128

gtgcggaagg aagtcttaaa gcttttacac actaggatta tttatctcgt tcctcatagt 60
gagtgggtta gcacggtaca agttgtgcca aagaaaggag gaatgtcggt tgttaggaat 120
gagaagaacg aattcatccc tcaacaaact gtcactgggt ggcgtatgtg cattgactac 180
caaaaactca acaaggccac aaggaaagat cacttcccgt tacctttcat tgatgaaatg 240
ttgtaatggc ttacaaatca ctcgttcttt tgtttccttg aagggtattc cagatatcat 300
caaatcccga tccaccacga tgaccaaagt aagactactt tcacatgacc ctatggaact 360
tacgcatacc gacgaatgtc gttcaggtta tgtaatgctc cagcttcttt tcaacggtgc 420
atgatgtcta ttttttccaa tatgattgag aaaatcatgg aggtattcac ggatgatttt 480
accgtatatg gcaaaacctt tgatgattgt ttagagaatt tggacaaagt cttacaattg 540
tgtgaaggaa agcacttaat cgtaaactag gagaaatgcc attttatggt ccgagaagga 600
atagtgctag ggcacaaggt gtccgaacgt gggatagagg tggatagagc caagattgaa 660
gttattgaaa aacttccacc tcccacaaat gtgaaagaca tccgcagttt tcttggacat 720
gcagggttct ataggcgctt catcaaagat ttcaccaagg tt 762

<210> 129
<211> 254
<212> PRT
<213> Sorghum bicolor

<400> 129
Val Arg Lys Glu Val Leu Lys Leu Leu His Thr Arg Ile Ile Tyr Leu
1 5 10 15

Val Pro His Ser Glu Trp Val Ser Thr Val Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Ser Val Val Arg Asn Glu Lys Asn Glu Phe Ile Pro Gln
35 40 45

Gln Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Gln Lys Leu Asn
50 55 60

Lys Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
65 70 75 80

Leu Glx Trp Leu Thr Asn His Ser Phe Phe Cys Phe Leu Glu Gly Tyr
85 90 95

Ser Arg Tyr His Gln Ile Pro Ile His His Asp Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Glx Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe
115 120 125

Arg Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
130 135 140

Phe Ser Asn Met Ile Glu Lys Ile Met Glu Val Phe Thr Asp Asp Phe
145 150 155 160

Thr Val Tyr Gly Lys Thr Phe Asp Asp Cys Leu Glu Asn Leu Asp Lys
165 170 175

Val Leu Gln Leu Cys Glu Gly Lys His Leu Ile Val Asn Glx Glu Lys
180 185 190

```
Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Lys Val Ser
        195                 200                 205

Glu Arg Gly Ile Glu Val Asp Arg Ala Lys Ile Glu Val Ile Glu Lys
    210                 215                 220

Leu Pro Pro Pro Thr Asn Val Lys Asp Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 130
<211> 761
<212> DNA
<213> Sorghum bicolor

<400> 130
gtgcgtaagg aggtttttaa gctgctgcat gcagagatta tatatcatgt gccgcacagt 60
gagtgggtaa gcccagttca agttgtgcct aaaaagggag gcatgattgt tgttacgaat 120
gaaaagaacg agctaattcc gcaacgcacc gtcacagggt ggcggatgtg catagactat 180
agaaaactaa acaaagccac gagaaaggat cattttcctt tacctttcat agatgagatg 240
ctagagcgat tagcaaacca ttcgttcttc tgtttcttag atggataatt agggtatcac 300
cagatcccaa tcaatcttga tgatcaaagc aaaaccactt ttccatgccc acatggaact 360
tatgcttacc gtagaatgtc ttttgggtta tgtaatgcac cagcttcttt tcaaagatgc 420
atgatgtctg tattttctaa tatgattgaa gagattatgg aattttcatg gatgatttct 480
ctgtttatgg aaaaactttt gatagttgtc ttgaaaactt agacagggtt ttgcaaagat 540
gtgaagaaaa gtacttagtc cttaattgga aaaaatgtca ttttatggtt agggaaggaa 600
tagtgctggg acacctagtg tctgaaagag gtattgaggt cgacaaagct aaaattgaag 660
taattgaaca actacctcca cctttgaata taaaaggaat tcgaagcttt cttggccatg 720
ctggttttta tcgtagattc attaaggact ttacaaaggt t 761

<210> 131
<211> 254
<212> PRT
<213> Sorghum bicolor

<400> 131
```
Val Arg Lys Glu Val Phe Lys Leu Leu His Ala Glu Ile Ile Tyr His
  1               5                  10                  15

Val Pro His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
             20                  25                  30

Gly Gly Met Ile Val Val Thr Asn Glu Lys Asn Glu Leu Ile Pro Gln
         35                  40                  45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
     50                  55                  60

Lys Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
 65                  70                  75                  80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Glx
                 85                  90                  95
```

Leu Gly Tyr His Gln Ile Pro Ile Asn Leu Asp Asp Gln Ser Lys Thr
100 105 110

Thr Phe Pro Cys Pro His Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Val
130 135 140

Phe Ser Asn Met Ile Glu Glu Ile Met Glu Ile Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Lys Thr Phe Asp Ser Cys Leu Glu Asn Leu Asp Arg
165 170 175

Val Leu Gln Arg Cys Glu Glu Lys Tyr Leu Val Leu Asn Trp Lys Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Leu Val Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Glu Val Ile Glu Gln
210 215 220

Leu Pro Pro Pro Leu Asn Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 132
<211> 763
<212> DNA
<213> Sorghum bicolor

<400> 132
gtgcggaaag aggtcgtcaa gctctatcat gctgggatta tttatcctgt gccacatagt 60
gagtgggtta gccctgttca agtagtgcca aagaaagaag gaatgacggt cgttaggaat 120
gagaagaatg aactcatccc tcaacaaatt gtcactagat ggcgtatgtg tattgactat 180
cgaaaactca acaaagctac aaagaaagat cactttccgt tacccttcat tgatgaaatg 240
ttggaatggc ttgcaaacca ctctttcttc tgtttccttg atggttattc tggatatcac 300
caaatcccaa tccacccaga tgaccaagaa aagactacct ttacatgccc gtattgaact 360
tatgcatact gacgaatgtc gttcggattg tgcaatgctc tagcttcttt tccagcggtg 420
catgatgtct attttctcgg acatgattga gaagatcatg gaggttttca tggatgattt 480
taccgtctat ggcaaaacct tcgatcattg tttggagaat ttagatagag tcttgcagcg 540
atgtgaggaa aatcacttaa tcttgaactg ggagaaatgt cattttatgg ttcaggaagg 600
aatagtgcta ggacataaag tgtccgaacg tggtatagat gtggacaaag caaagattaa 660
agttattgaa aaacttccac ctcacacgaa tgtgaaagga atccatagct ttttgggaca 720
tgcagggttc tatagacgct tcatcaagga tttcacaaag gtt 763

<210> 133
<211> 254
<212> PRT
<213> Sorghum bicolor

<400> 133
Val Arg Lys Glu Val Val Lys Leu Tyr His Ala Gly Ile Ile Tyr Pro
1 5 10 15

Val Pro His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Glu Gly Met Thr Val Val Arg Asn Glu Lys Asn Glu Leu Ile Pro Gln
35 40 45

Gln Ile Val Thr Arg Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
65 70 75 80

Leu Glu Trp Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr His Gln Ile Pro Ile His Pro Asp Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Glx Thr Tyr Ala Tyr Glx Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Leu Ala Ser Phe Gln Arg Cys Met Met Ser Ile
130 135 140

Phe Ser Asp Met Ile Glu Lys Ile Met Glu Val Phe Met Asp Asp Phe
145 150 155 160

Thr Val Tyr Gly Lys Thr Phe Asp His Cys Leu Glu Asn Leu Asp Arg
165 170 175

Val Leu Gln Arg Cys Glu Glu Asn His Leu Ile Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Glu Arg Gly Ile Asp Val Asp Lys Ala Lys Ile Lys Val Ile Glu Lys
210 215 220

Leu Pro Pro His Thr Asn Val Lys Gly Ile His Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 134
<211> 756
<212> DNA
<213> Sorghum bicolor

<400> 134

aaggaggttt tcaagttgct gcatgcaggg attatatatc ttgtgccgca tagtgagtgg 60
gtaagcccag ttcaagttgt gcctaaaaag ggaggcatga ctattattat gaatgaaaag 120
aacgagctaa ttccgcaacg caccgttaca gtatggcgga tgtgcataga ctatagaaaa 180
ctaaacaaag ccacgagaga ggatcacttt cctttacctt tcatagatga gatgctagag 240
tggttagcaa accattcgtt cttctgtttc ttagatggat attgagggta tcatcagatc 300
ccgatccatc ccgatgatca aagcaaaacc acttttacat gcccatatgg aacttatgct 360
taccgtagaa tgtcttttgg gttatgtaat gcactagctt cttttcaaag atgcatgatg 420
tctatatttt ctgatatgat tgaagagatt atggaagttt tcatggatga tttctctgtt 480
tatggaaaaa cttttgatag ttgtcttaaa aacttagaca aggttttgca aagatgtgaa 540
gaaaagcact tagtccttaa ttgggaaaaa tgtcatttca tggttaggga aggaatagtg 600
ctgggacact tagtgtctga aagagctatt gaggtagata aagctaaaat tgaagtaatt 660
gaacaactac gtccacctgt gaacataaaa ggaatttgaa gctttcttgg ccatgctggt 720
tttcatcgta gattcataaa agactttaca aaggtt 756

<210> 135
<211> 252
<212> PRT
<213> Sorghum bicolor

<400> 135
Lys Glu Val Phe Lys Leu Leu His Ala Gly Ile Ile Tyr Leu Val Pro
1 5 10 15

His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys Gly Gly
20 25 30

Met Thr Ile Ile Met Asn Glu Lys Asn Glu Leu Ile Pro Gln Arg Thr
35 40 45

Val Thr Val Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn Lys Ala
50 55 60

Thr Arg Glu Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met Leu Glu
65 70 75 80

Trp Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr Glx Gly
85 90 95

Tyr His Gln Ile Pro Ile His Pro Asp Asp Gln Ser Lys Thr Thr Phe
100 105 110

Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe Gly Leu
115 120 125

Cys Asn Ala Leu Ala Ser Phe Gln Arg Cys Met Met Ser Ile Phe Ser
130 135 140

Asp Met Ile Glu Glu Ile Met Glu Val Phe Met Asp Asp Phe Ser Val
145 150 155 160

Tyr Gly Lys Thr Phe Asp Ser Cys Leu Lys Asn Leu Asp Lys Val Leu
165 170 175

Gln Arg Cys Glu Glu Lys His Leu Val Leu Asn Trp Glu Lys Cys His
180 185 190

```
Phe Met Val Arg Glu Gly Ile Val Leu Gly His Leu Val Ser Glu Arg
        195                 200                 205

Ala Ile Glu Val Asp Lys Ala Lys Ile Glu Val Ile Glu Gln Leu Arg
    210                 215                 220

Pro Pro Val Asn Ile Lys Gly Ile Glx Ser Phe Leu Gly His Ala Gly
225                 230                 235                 240

Phe His Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 136
<211> 762
<212> DNA
<213> Glycine max

<400> 136
gtgcgtaagg aggttgtcaa gcttttggag gttgggctca tatacctcat ctctgacagc 60
gcttgggtaa gcctagtaca ggtggctccc aagaaatgcg gaatgacagt ggtacaaaat 120
gagaggaatg acttgatacc aacacgaact gtcactggct agcggatgtg tatcgactac 180
tgcaagttga atgaagccac acggaaggac catttcccct tacctttcat ggatcagatg 240
ctggagaggc ttgcagggca ggcatactac tgtttcttgg atagatattc aggatacaac 300
caaatcgcgg tagaccccag agatcaggag aagatggcct ttacatgccc ctttggcgtc 360
tttgcttaca gaaggatgtc attcaggtta tgtaacgcac cagccacatt tcagaggtgc 420
gtgctggcca ttttttcaga catggtggag aagagcatcg aggtatttat ggatgaattc 480
tcgatttttg gacccttatt tgacagttgc ttaaggaact tagagatggt actacagagg 540
tgcgtataga ctaacttggt actaaattag gaaaaatgtc atttcatggt tcgagaggga 600
atagtgatgg accacaatat ctcagctaga gggattgagg ttgatcaggc aaagatagac 660
gtcattgaga agttgccacc accactgaat gttaaaggcg tcagaagttt cttagggcat 720
gcaggtttct acaggaggtt tatcaaggac ttcaccaagg tt   762

<210> 137
<211> 254
<212> PRT
<213> Glycine max

<400> 137
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Val Arg Lys Glu Val Val Lys Leu Leu Glu Val Gly Leu Ile Tyr Leu
  1               5                  10                  15

Ile Ser Asp Ser Ala Trp Val Ser Leu Val Gln Val Ala Pro Lys Lys
             20                  25                  30

Cys Gly Met Thr Val Val Gln Asn Glu Arg Asn Asp Leu Ile Pro Thr
         35                  40                  45

Arg Thr Val Thr Gly Glx Arg Met Cys Ile Asp Tyr Cys Lys Leu Asn
     50                  55                  60

Glu Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
 65                  70                  75                  80

Leu Glu Arg Leu Ala Gly Gln Ala Tyr Tyr Cys Phe Leu Asp Arg Tyr
                 85                  90                  95
```

```
Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Arg Asp Gln Glu Lys Met
            100                 105                 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Ser Phe
        115                 120                 125

Arg Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Val Leu Ala Ile
    130                 135                 140

Phe Ser Asp Met Val Glu Lys Ser Ile Glu Val Phe Met Asp Glu Phe
145                 150                 155                 160

Ser Ile Phe Gly Pro Leu Phe Asp Ser Cys Leu Arg Asn Leu Glu Met
                165                 170                 175

Val Leu Gln Arg Cys Val Glx Thr Asn Leu Val Leu Asn Glx Glu Lys
            180                 185                 190

Cys His Phe Met Val Arg Glu Gly Ile Val Met Asp His Asn Ile Ser
        195                 200                 205

Ala Arg Gly Ile Glu Val Asp Gln Ala Lys Ile Asp Val Ile Glu Lys
    210                 215                 220

Leu Pro Pro Pro Leu Asn Val Lys Gly Val Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
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<210> 138
<211> 763
<212> DNA
<213> Glycine max

<400> 138
gtgcgtaagg aggtctttaa gttcttggag gctgggctca tatatcccat ctctaatagc 60
acttaggtaa gcccagtaca ggtggttccc aagaaaggtg gaatgacagt agtacagaat 120
gagaagaatg acttgatacc aacacgaact gtcactagct ggcgaatatg catcgattat 180
cgcaagctga atgaggccac ccggaaggac cacttccctc tacctttcat ggatcagatg 240
ttggagagac ttgcagggca ggcgtattat tgtttcttgg atggatactc gagatataat 300
cagattgcgg tggaccctag agaccaagag aagacgacct tcacatgccc tttttggcgt 360
ctttgcttac agaaggatgc cattcgggtt atgtaatgca ccagccacat ttcagaggtg 420
catgctggcc atttttttcag acatggtgga gaaaaatatc gaggtattca tggatgactt 480
ttcagttttt gggccctcat ttgacagttg tttgaggaac ctagagatgg tactttagag 540
gtgcgtagag actaatttag tgctgaactg ggagaagtgt cattttatgg ttcgagaggg 600
catagtcctg agccacaaga tctcagctag agggattgag gttgaccggg caaagataga 660
cgtcatagag aagctgccac caccattgaa tattaaaggt gtcagaagtt tcttagggca 720
tgcaggattc tacaggagat tcataaagga ctttacaaag gtt 763

<210> 139
<211> 254
<212> PRT
<213> Glycine max

<400> 139
Val Arg Lys Glu Val Phe Lys Phe Leu Glu Ala Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asn Ser Thr Glx Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Val Gln Asn Glu Lys Asn Asp Leu Ile Pro Thr
35 40 45

Arg Thr Val Thr Ser Trp Arg Ile Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ala Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Arg Tyr Asn Gln Ile Ala Val Asp Pro Arg Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Leu Ala Ile
130 135 140

Phe Ser Asp Met Val Glu Lys Asn Ile Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Pro Ser Phe Asp Ser Cys Leu Arg Asn Leu Glu Met
165 170 175

Val Leu Glx Arg Cys Val Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Ser His Lys Ile Ser
195 200 205

Ala Arg Gly Ile Glu Val Asp Arg Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Leu Asn Ile Lys Gly Val Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 140
<211> 762
<212> DNA
<213> Glycine max

<400> 140

gtgcgcaagg aggttttgaa gcttctagag gttgggctta tctaccccat ctccgacagc 60
gcttgggtaa gcccagtctt ggtggtgtcg aagaaagagg gcatgacagt cattcgaaat 120
gaaaagaatg acctgatacc aacacgaact gtcactagtt ggaaattatg catcgattac 180
cgcaagctca acgaagccac aaggaaagac catttccctc taccttcat ggatcagatg 240
ttggagagac ttgcaggaca cgcttattat tgcttcttgg atgcatactt tggatataat 300
cagattgttg tagaccccaa ggatcaggag aagatggcct tcacatgccc ttttggtgtc 360
tttgcctata gacggattcc atttgggttg tgcaatgcac ctaccacatt ccaaatgtgc 420
atgttggcca tttttgcaga tatagtggag aaaagcatcg aagtattcat ggatgacttt 480
tcagtatttg tgccctcatt agaaagttgt ttgaagaagt tggagatggt actacaaaga 540
tgcgtggaaa caaacttagt actaaattgg gagaagtgtc acttcatggt tcgagaaggc 600
atagtcttag gccataaaat ttcgacccga ggaattgagg tagaccaaac aaagattgat 660
gtcattgaaa agttgccacc accatcaaat gttaaaggca tcaggagctt cctaggacaa 720
gccaggttct acagaagatt catcaaggac ttcacaaaag tt 762

<210> 141
<211> 254
<212> PRT
<213> Glycine max

<400> 141
Val Arg Lys Glu Val Leu Lys Leu Leu Glu Val Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Pro Val Leu Val Val Ser Lys Lys
20 25 30

Glu Gly Met Thr Val Ile Arg Asn Glu Lys Asn Asp Leu Ile Pro Thr
35 40 45

Arg Thr Val Thr Ser Trp Lys Leu Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly His Ala Tyr Tyr Cys Phe Leu Asp Ala Tyr
85 90 95

Phe Gly Tyr Asn Gln Ile Val Val Asp Pro Lys Asp Gln Glu Lys Met
100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Ile Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Gln Met Cys Met Leu Ala Ile
130 135 140

Phe Ala Asp Ile Val Glu Lys Ser Ile Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Val Pro Ser Leu Glu Ser Cys Leu Lys Lys Leu Glu Met
165 170 175

Val Leu Gln Arg Cys Val Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

```
Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

Thr Arg Gly Ile Glu Val Asp Gln Thr Lys Ile Asp Val Ile Glu Lys
    210                 215                 220

Leu Pro Pro Pro Ser Asn Val Lys Gly Ile Arg Ser Phe Leu Gly Gln
225                 230                 235                 240

Ala Arg Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 142
<211> 762
<212> DNA
<213> Glycine max

<400> 142
gtgcggaagg aggttattaa gttgctagag gcagggctca tttacctaat ctcagatagt 60
tcataggtta gtcctgttca tgttgctctg aaaaagggag gtatgacagt gataaagaat 120
gatagagatg agttaattcc tacaagaata gttactggat ggaggatggg tattgattac 180
aagaagctaa atgaagccac caggaaagac cattacccgc ttcccttcat ggatcaaatg 240
cttgagagac ttgcagggca atcttcctac tatttattag atggatactc gggctacaat 300
caaattgcag tggatcctca ggaccaagaa aagacagctt tcacatgtcc ttttggtgta 360
tttgcttatc gccgcatgtc gttcggttta tgtaatgccc caactacttt ccagagatgt 420
atgatggcaa tttttgctga catggtaaag aaatgtattg aagtttttat ggacgatttc 480
tctgtctttg gtgcatcttt tgaaaattgc ctagcaaatt tagagaaagt gttacaacgc 540
tatgaagaat ctaatttggt gctcaactgg gaaaaatgtc actttatggt tcaagaaggt 600
atcatgctgg gacacaagat ttctagaaga ggaattaagg tggataaggc aaagattgag 660
gttattgata aacttccacc tctagttaat gttagaggca tacgaagttt tttgggtcat 720
gctagattct atcgatgatt tatcaaggac ttcaccaaag tt 762

<210> 143
<211> 254
<212> PRT
<213> Glycine max

<400> 143
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Val Arg Lys Glu Val Ile Lys Leu Leu Glu Ala Gly Leu Ile Tyr Leu
  1               5                  10                  15

Ile Ser Asp Ser Ser Glx Val Ser Pro Val His Val Ala Leu Lys Lys
            20                  25                  30

Gly Gly Met Thr Val Ile Lys Asn Asp Arg Asp Glu Leu Ile Pro Thr
        35                  40                  45

Arg Ile Val Thr Gly Trp Arg Met Gly Ile Asp Tyr Lys Lys Leu Asn
    50                  55                  60

Glu Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Asp Gln Met
65                  70                  75                  80

Leu Glu Arg Leu Ala Gly Gln Ser Ser Tyr Tyr Leu Leu Asp Gly Tyr
                85                  90                  95
```

```
Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Gln Asp Gln Glu Lys Thr
            100                 105                 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Ser Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Gln Arg Cys Met Met Ala Ile
    130                 135                 140

Phe Ala Asp Met Val Lys Lys Cys Ile Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Phe Gly Ala Ser Phe Glu Asn Cys Leu Ala Asn Leu Glu Lys
                165                 170                 175

Val Leu Gln Arg Tyr Glu Glu Ser Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Gln Glu Gly Ile Met Leu Gly His Lys Ile Ser
        195                 200                 205

Arg Arg Gly Ile Lys Val Asp Lys Ala Lys Ile Glu Val Ile Asp Lys
    210                 215                 220

Leu Pro Pro Leu Val Asn Val Arg Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Arg Phe Tyr Arg Glx Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 144
<211> 761
<212> DNA
<213> Glycine max

<400> 144
gtgcggaagg aggtctttaa gttgctggaa gcaggcctta tttatcccat ttcggatagt 60
gcatgggtta gccctatgca agttgtccct aagaaaggag gtatgacagt cattaagaat 120
gataaagatg agttgatatc cacaaggacc gtcaccgggt ggagaatgtg cattgactat 180
cgaaagctga atgatgcacc cggaaggacc attatccact ccctttcatg ggccatatgc 240
ttgaaagact tgttgggcaa tcctattatt gttttctaga tggatattat ggttataatc 300
agattgttgt agatcccaaa gatcaagaga agacagcttt cacctaccct tttggtgtat 360
tcgcatatca gtgcatgcct tttggtctat gcaatgcccc agctacattt cagaggtgta 420
tgatggctat tttttctgat atggtggaaa tatgcattga agttttcatg gacgatttct 480
ctatttttgg gccatccttt gaagggtgct tatcaaatct tgaaaaagta ttaaagagat 540
gtgaagagtc caatctagtt ctcaattgga agaaatgcca tttcatggtt caagaaggaa 600
taatgttggg gcataaaatt tcagtaagag ggatagaggt ggacaaggca aagattgatg 660
taattgagaa actacttgct cccatgaatg tcaagggaat aagaagcttc ttaggacatg 720
cagggttcta caggcgattc ataaaagact tcaccaaagt t 761

<210> 145
<211> 254
<212> PRT
<213> Glycine max

<400> 145
Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Pro Met Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Ile Lys Asn Asp Lys Asp Glu Leu Ile Ser Thr
35 40 45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Asp Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Gly His Met
65 70 75 80

Leu Glu Arg Leu Val Gly Gln Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Tyr Gly Tyr Asn Gln Ile Val Val Asp Pro Lys Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Tyr Pro Phe Gly Val Phe Ala Tyr Gln Cys Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Ser Asp Met Val Glu Ile Cys Ile Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Ile Phe Gly Pro Ser Phe Glu Gly Cys Leu Ser Asn Leu Glu Lys
165 170 175

Val Leu Lys Arg Cys Glu Glu Ser Asn Leu Val Leu Asn Trp Lys Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Met Leu Gly His Lys Ile Ser
195 200 205

Val Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Leu Ala Pro Met Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 146
<211> 762
<212> DNA
<213> Glycine max

<400> 146

gtgcgtaagg aggtggtcaa gttgcttgaa gtaggactaa tttatccaat ctctgatagt 60
gcttgggtga gttcgaacta ggtggtgcct aagaaaggtg gtatgacggt gatccacaat 120
gataagaatg atcttattcc tacacagaca atcattaggt ggcaaatgtg tattgactat 180
cacaagttga atgatgtcac caagaaggac cattttcctc tgccattcat ggaccaaatg 240
ttagagaggt tagctggcca agctttttat tgtttttgg atggttattc tgggtataac 300
caaatagcgg tgcatcttaa agatcaagag aagactacta tcatatgccc atttggtgtc 360
tttgcttaca gacaaatgtc atttgaactg tgtaatgccc ctaccacctt ctagagattc 420
atgatggcca tttttgctga ccttgtggag aaatgcatag aggtgttcat gaatgatttc 480
tctattttcg gctcttcctt ttatcattgt ttatccaacc tggaattagt gttacaacgg 540
tgtgcggaaa ccaatttgtt gatgaactgg gagaaatgtc atttcatggt ccaagagggg 600
attgtcttag gccacaagat ctcttccaga gggttggaag tggacaaggc aaaaattgat 660
gttattgaga agttgcctcc acctatgaat gtgaaaggca tccgaagttt tctcgaatat 720
gttggatttt ataggaggtt catcaaagac ttcacgaaag tt 762

<210> 147
<211> 254
<212> PRT
<213> Glycine max

<400> 147
Val Arg Lys Glu Val Val Lys Leu Leu Glu Val Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Ser Asn Glx Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Ile His Asn Asp Lys Asn Asp Leu Ile Pro Thr
35 40 45

Gln Thr Ile Ile Arg Trp Gln Met Cys Ile Asp Tyr His Lys Leu Asn
50 55 60

Asp Val Thr Lys Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ala Phe Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val His Leu Lys Asp Gln Glu Lys Thr
100 105 110

Thr Ile Ile Cys Pro Phe Gly Val Phe Ala Tyr Arg Gln Met Ser Phe
115 120 125

Glu Leu Cys Asn Ala Pro Thr Thr Phe Glx Arg Phe Met Met Ala Ile
130 135 140

Phe Ala Asp Leu Val Glu Lys Cys Ile Glu Val Phe Met Asn Asp Phe
145 150 155 160

Ser Ile Phe Gly Ser Ser Phe Tyr His Cys Leu Ser Asn Leu Glu Leu
165 170 175

Val Leu Gln Arg Cys Ala Glu Thr Asn Leu Leu Met Asn Trp Glu Lys
180 185 190

```
Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

Ser Arg Gly Leu Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
    210                 215                 220

Leu Pro Pro Pro Met Asn Val Lys Gly Ile Arg Ser Phe Leu Glu Tyr
225                 230                 235                 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
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<210> 148
<211> 762
<212> DNA
<213> Glycine max

<400> 148
gtgcgtaagg aggttctcaa gcttttggag gttgggctca tatacctcat ctctgacagc 60
gcttgggtaa gcctagtaca ggtggctccc aagaaatgcg gaatgacagt ggtacaaaat 120
gagaggaatg acttgatacc aacacgaact gtcactggct agcggatgtg tatcgactac 180
tgcaagttga atgaagccac acggaaggac catttcccct tacctttcat ggatcagatg 240
ctggagaggc ttgcagggca ggcatactac tgtttcttgg atagatattc aggatacaac 300
caaatcgcgg tagaccccag agatcaggag aagatggcct ttacatgccc ctttggcgtc 360
tttgcttaca gaaggatgtc attcaggtta tgtaacgcac cagccacatt tcagaggtgc 420
atgctggcca ttttttcaga catggtggag aagagcatcg aggtatttat ggatgaattc 480
tcgatttttg gacccttatt tgacagttgc ttaaggaact tagagatggt actacagagg 540
tgcgtataga ctaacttggt actaaattag gaaaaatgtc atttcatggt tcgagaggga 600
atagtgatgg gccacaatat ctcagctaga gggattgagg ttgatcagac aaagatagac 660
gtcattgaga agttgccacc accactgaat gttaaaggcg tcagaagttt cttagggcat 720
gcaggtttct acaggaggtt cataaaagac ttcacaaagg tt   762

<210> 149
<211> 254
<212> PRT
<213> Glycine max

<400> 149
```
Val Arg Lys Glu Val Leu Lys Leu Leu Glu Val Gly Leu Ile Tyr Leu
  1               5                  10                  15

Ile Ser Asp Ser Ala Trp Val Ser Leu Val Gln Val Ala Pro Lys Lys
             20                  25                  30

Cys Gly Met Thr Val Val Gln Asn Glu Arg Asn Asp Leu Ile Pro Thr
         35                  40                  45

Arg Thr Val Thr Gly Glx Arg Met Cys Ile Asp Tyr Cys Lys Leu Asn
     50                  55                  60

Glu Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
 65                  70                  75                  80

Leu Glu Arg Leu Ala Gly Gln Ala Tyr Tyr Cys Phe Leu Asp Arg Tyr
                 85                  90                  95
```

```
Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Arg Asp Gln Glu Lys Met
            100                 105                 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Ser Phe
        115                 120                 125

Arg Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Leu Ala Ile
    130                 135                 140

Phe Ser Asp Met Val Glu Lys Ser Ile Glu Val Phe Met Asp Glu Phe
145                 150                 155                 160

Ser Ile Phe Gly Pro Leu Phe Asp Ser Cys Leu Arg Asn Leu Glu Met
                165                 170                 175

Val Leu Gln Arg Cys Val Glx Thr Asn Leu Val Leu Asn Glx Glu Lys
            180                 185                 190

Cys His Phe Met Val Arg Glu Gly Ile Val Met Gly His Asn Ile Ser
        195                 200                 205

Ala Arg Gly Ile Glu Val Asp Gln Thr Lys Ile Asp Val Ile Glu Lys
    210                 215                 220

Leu Pro Pro Pro Leu Asn Val Lys Gly Val Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
```

<210> 150
<211> 761
<212> DNA
<213> Glycine max

<400> 150
gtgcgtaagg aggtttttaa gttgctggaa gcaggtctta tttatcccat ttcggatagt 60
gcatgggtta gccctgtgca ggttgtcccc aagaaagaag gtaagacagt cattaaggat 120
gaaaaggatg agttgatatc cacaaggact atcaccgggt ggagaatgtg cattgactat 180
cagaagctga atgatgccac ccggaaggac cattatccac tccctttcat ggaccaaatg 240
cttgaaagac ttgccgggca atcttattat tgttttctgg atggatattc tggttataat 300
cagattgatg tagatcccaa ggatcaagag aagactgctt tcacctaccc ttttggtgta 360
ttcgcctatc ggcgcatgcc ctttggtttg tgcaatgccc cagctacatt tcagaggtgt 420
atgatgacta ttttttctga tatggtggaa aaatgaattg aagttttcat ggacgatttc 480
tctatttttg ggccatcttt tgaagggtgc ttatcaaatc ttgaaagagt attaaagaga 540
cgtgaagagt ccaaactagt tctcaattgg gagaaatgcc atttcatggt tcaagaagga 600
atagtgtggg gcataaaatt tcagtaagag ggatagaggt ggacaaggca aagattgatg 660
taatagagaa actacctcct cccatgaatg tcaagggaat aagaagcttc ctaggacatg 720
cagggttcta caagcgattc atcaaagatt tcacaaaggt t 761

<210> 151
<211> 254
<212> PRT
<213> Glycine max

<400> 151
Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Glu Gly Lys Thr Val Ile Lys Asp Glu Lys Asp Glu Leu Ile Ser Thr
35 40 45

Arg Thr Ile Thr Gly Trp Arg Met Cys Ile Asp Tyr Gln Lys Leu Asn
50 55 60

Asp Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Asp Val Asp Pro Lys Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Tyr Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Thr Ile
130 135 140

Phe Ser Asp Met Val Glu Lys Glx Ile Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Ile Phe Gly Pro Ser Phe Glu Gly Cys Leu Ser Asn Leu Glu Arg
165 170 175

Val Leu Lys Arg Arg Glu Glu Ser Lys Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Val Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Met Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Lys Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 152
<211> 762
<212> DNA
<213> Glycine max

<400> 152

gtgcggaaag aggtattcaa gttactagag gcagggctca tctacccaat ttcagatagc 60
tcctgggtta gtccggttca agttgttcca aaaaaaggag ggatgacagt ggtaaaaaat 120
gatagaaatg agctaattcc tacaagaaga gtcaccagat ggagaatgtg tattgattat 180
aggaagctca atgaagccac aagaaaagac cattacccac ttcccttcat ggatcaaatg 240
cttaagagac ttgcaaggca atccttctac cgtttcttgg acggatactc aggttacaat 300
cagattgcag tggatcctca ggatcaagaa aaaacagctt ttacatgtcc tttcagtgtt 360
tttgcttatc gccgcatgcc gttcggttta tgtaatgcct ctactacttt tcagagatgt 420
atgatggcaa tttttgatga catggtagag aaatgtattg aagtctttat ggatgatttt 480
tcgttctttg gtgcatcttt tggaaattgc ttagcaaatt tagagaaagt gttacaacgt 540
tgtgaaaaat ctaatttggt gcttaactgg gaaaaatgtc actttatggt acaagaaggt 600
attgtgctag gacacaaaat ctctaaaaga ggaattgagg tggttaaaga aaaactagat 660
gttattgata aacttccacc cccagttaat gtaaaaggca tacacagttt tttgggtcat 720
gttggatttt atcggcgatt cataaaggac ttcaccaaag tt 762

<210> 153
<211> 254
<212> PRT
<213> Glycine max

<400> 153
Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ser Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Val Lys Asn Asp Arg Asn Glu Leu Ile Pro Thr
35 40 45

Arg Arg Val Thr Arg Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Lys Arg Leu Ala Arg Gln Ser Phe Tyr Arg Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Gln Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Cys Pro Phe Ser Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Ser Thr Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Asp Asp Met Val Glu Lys Cys Ile Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Phe Phe Gly Ala Ser Phe Gly Asn Cys Leu Ala Asn Leu Glu Lys
165 170 175

Val Leu Gln Arg Cys Glu Lys Ser Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

```
Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

Lys Arg Gly Ile Glu Val Val Lys Glu Lys Leu Asp Val Ile Asp Lys
    210                 215                 220

Leu Pro Pro Pro Val Asn Val Lys Gly Ile His Ser Phe Leu Gly His
225                 230                 235                 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
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<210> 154
<211> 761
<212> DNA
<213> Glycine max

<400> 154
gtgcgtaaag aagttttgaa gctgctagaa gcagacctta tttatcccat ttcggatagt 60
acatgggtta gccctgtgca agttgtcccc gagaaaggag gtatgacagt cattaagaat 120
gataaagatg agttgatatc cacaaggact gtcaccgggt gagaatgtgc attgactatc 180
ggaagctgaa tgatgccacc cagaaggacc attattcact ccctttcatg gaccagatgc 240
ttgaaagact tgccggacaa tcctattatt gttttctgaa tggatactct ggctataatc 300
agattgtggt agatcccaaa gatcaggaga aaactgcttt cacctgcctt tttggtgtat 360
ttgcatacaa gcgtatgcat tttggcttgt gtaatgctcc aactacgtgt cagaggtgta 420
tgatgactat tttttctggt atcgtggaaa aatgcattga acttttcatg gacgatttct 480
ctatttttgg gccatctttt gaaggctact tatcaaacct tgaaagagta ttacagagat 540
gtgaagagtc taatctagtt ctcaattggg agaaatgcca tttcatggtt caagaaggaa 600
tagtgctggg gcataaaatt tcagtaagag ggatagaggt ggacaaggca aagattgatg 660
taattgagaa actacctcct cccatgattg tcaagggaat aagaagcctc ctaggacatg 720
tagggttcta caggcgattc atcaaagact tcacaaaggt t 761

<210> 155
<211> 254
<212> PRT
<213> Glycine max

<400> 155
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Val Arg Lys Glu Val Leu Lys Leu Leu Glu Ala Asp Leu Ile Tyr Pro
  1               5                  10                  15

Ile Ser Asp Ser Thr Trp Val Ser Pro Val Gln Val Val Pro Glu Lys
            20                  25                  30

Gly Gly Met Thr Val Ile Lys Asn Asp Lys Asp Glu Leu Ile Ser Thr
        35                  40                  45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
    50                  55                  60

Asp Ala Thr Gln Lys Asp His Tyr Ser Leu Pro Phe Met Asp Gln Met
65                  70                  75                  80

Leu Glu Arg Leu Ala Gly Gln Ser Tyr Tyr Cys Phe Leu Asn Gly Tyr
                85                  90                  95
```

Ser Gly Tyr Asn Gln Ile Val Val Asp Pro Lys Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Cys Leu Phe Gly Val Phe Ala Tyr Lys Arg Met His Phe
115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Cys Gln Arg Cys Met Met Thr Ile
130 135 140

Phe Ser Gly Ile Val Glu Lys Cys Ile Glu Leu Phe Met Asp Asp Phe
145 150 155 160

Ser Ile Phe Gly Pro Ser Phe Glu Gly Tyr Leu Ser Asn Leu Glu Arg
165 170 175

Val Leu Gln Arg Cys Glu Glu Ser Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Val Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Met Ile Val Lys Gly Ile Arg Ser Leu Leu Gly His
225 230 235 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 156
<211> 762
<212> DNA
<213> Glycine max

<400> 156
gtgcgtaagg aggtttttaa gttgctggaa gcaggtctta tttatcccat ttcggatagt 60
gcatgggtta gccctgtgca ggttgtcccc aagaaagaag gtaagacagt cattaaggat 120
gaaaaagatg agttgatatc cacaaggact atcaccgggt ggagaatgtg cattgactat 180
cagaagctga atgatgccac ccggaaggac cattatccac tccctttcat ggaccaaatg 240
cttgaaagac ttgccgggca atcttattat tgttttctgg atggatattc tggttataat 300
cagattgatg tagatcccaa ggatcaagag aagactgctt tcacctaccc ttttggtgta 360
ttcgcctatc ggcgcatgcc ctttggtttg tgcaatgccc cagctacatt tcagaggtgt 420
atgatgacta ttttttctga tatggtggaa aaatgaattg aagttttcat ggacgatgtc 480
tctatttttg ggccatcttt tgaagggtgc ttatcaaatc ttgaaagagt attaaagaga 540
cgtgaagagt ccaaactagt tctcaattgg gagaaatgcc atttcatggt tcaagaagga 600
atagtgttgg ggcataaaat ttcagtaaga gggatagagg tggacaaggc aaagattgat 660
gtaatagaga aactacctcc tcccatgaat gtcaagggaa taagaagctt cctaggacat 720
gcagggttct acaagcgatt catcaaagac ttctcaaaag tt 762

<210> 157
<211> 254
<212> PRT
<213> Glycine max

<400> 157
Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Glu Gly Lys Thr Val Ile Lys Asp Glu Lys Asp Glu Leu Ile Ser Thr
35 40 45

Arg Thr Ile Thr Gly Trp Arg Met Cys Ile Asp Tyr Gln Lys Leu Asn
50 55 60

Asp Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Asp Val Asp Pro Lys Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Tyr Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Thr Ile
130 135 140

Phe Ser Asp Met Val Glu Lys Glx Ile Glu Val Phe Met Asp Asp Val
145 150 155 160

Ser Ile Phe Gly Pro Ser Phe Glu Gly Cys Leu Ser Asn Leu Glu Arg
165 170 175

Val Leu Lys Arg Arg Glu Glu Ser Lys Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Val Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Met Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Lys Arg Phe Ile Lys Asp Phe Ser Lys Val
245 250

<210> 158
<211> 761
<212> DNA
<213> Glycine max

<400> 158

gtgcggaagg aggttcttaa gctcctggaa gcagggctca tctatcttat ctcagatagt 60
gttgggtgag tccagtgcat gtggttccca agaagggtgg gaagactgtg gtgagaaatg 120
agaaaaatga cctcattcta acccgaactg tcacaggatg gagaatgtgc atagattatc 180
ggaagttgaa tgatgccatc aagaaggatc acttccctct accattcata gatcagatgc 240
ttgagaggtt agcaagccag tctttctatt atttcttgga tgaatattct agatacaatc 300
agattgctat acatcccaag gaccaagaga agattgcatt tacatgccca tttggtgtct 360
ttgcctatag aaggatgcca tttgaactat gcaatgctcc agctaccttt tagaggcata 420
tgctagccat attcgctaac atggtggaga aatgcatcga agtgttcata gatgattttt 480
cggtgtttgg tccatccttt gtttgttgtt tgaccaattt agagctagtg ttgaagtact 540
gtgaggagac aaatttagta ttgaattggg agaaatgtca tttcatggtc caagaaggaa 600
ttatgttggg gcataaaatt tttgctagag gtattgaggt ggacaaggcc aaaattgatg 660
ttattgaaaa gctgcctcca ccagtcaatg taaaaggcat caggagtttt cttggacaca 720
ctggtttctt caggcgtttc atcaaggact tcacaaaagt t 761

<210> 159
<211> 254
<212> PRT
<213> Glycine max

<400> 159
Val Arg Lys Glu Val Leu Lys Leu Leu Glu Ala Gly Leu Ile Tyr Leu
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Pro Val His Val Val Pro Lys Lys
20 25 30

Gly Gly Lys Thr Val Val Arg Asn Glu Lys Asn Asp Leu Ile Leu Thr
35 40 45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Asp Ala Ile Lys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Ser Gln Ser Phe Tyr Tyr Phe Leu Asp Glu Tyr
85 90 95

Ser Arg Tyr Asn Gln Ile Ala Ile His Pro Lys Asp Gln Glu Lys Ile
100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Glu Leu Cys Asn Ala Pro Ala Thr Phe Glx Arg His Met Leu Ala Ile
130 135 140

Phe Ala Asn Met Val Glu Lys Cys Ile Glu Val Phe Ile Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Pro Ser Phe Val Cys Cys Leu Thr Asn Leu Glu Leu
165 170 175

Val Leu Lys Tyr Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

```
Cys His Phe Met Val Gln Glu Gly Ile Met Leu Gly His Lys Ile Phe
        195                 200                 205

Ala Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
    210                 215                 220

Leu Pro Pro Pro Val Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Thr Gly Phe Phe Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
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<210> 160
<211> 762
<212> DNA
<213> Pisum sativum

<400> 160
gtgcgcaagg aagtactcaa gttgttagat tcgggaatga tttaccccat ttctgacagc 60
tcgtgggtaa gtccagtgca cgtggtacca aagaaaggag gaacctcagt aattttaaat 120
gaaaagaatg aactgatccc aactcgcaca gtgacagggt ggcgagtatg catcgatcac 180
agaagactga acacagcaac aagaaaggat cattttcctc tccctttttat tgatcaaatg 240
ttagaaagac ttgcaggtca tgagtattat tgctttctgg atggatattc gggatacaat 300
caaattgttg tagccccgga agatcaggaa aaaactgcat ttacatgtcc ttatggtatt 360
ttcgcttaca gacggatgcc atttgggcta tgcaatgccc cagctacttt tcagaggtgt 420
atgacatcta tattctccga catgcttgaa aagtatatga aggtgtttat ggatgatttc 480
tctgtgtttg gttcttcttt tgataattgt ttagctaact tgtctcttgt tttgcaaaga 540
tgtcaggaaa ctaaccttgt tctcaattgg gagaaatgtc atttcatggt gcaggaagga 600
attgtgctag gacacaaaat ttcccacaaa ggaattgaag tggacaaagc caaagtggag 660
gttatagcta acctcccacc tccggtgaat gaaaaaggga taaggagttt tttgggtcat 720
gcaggttttt atcgcaggtt catcaaagac ttcacaaagg tt 762

<210> 161
<211> 254
<212> PRT
<213> Pisum sativum

<400> 161
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Val Arg Lys Glu Val Leu Lys Leu Leu Asp Ser Gly Met Ile Tyr Pro
  1               5                  10                  15

Ile Ser Asp Ser Ser Trp Val Ser Pro Val His Val Val Pro Lys Lys
             20                  25                  30

Gly Gly Thr Ser Val Ile Leu Asn Glu Lys Asn Glu Leu Ile Pro Thr
         35                  40                  45

Arg Thr Val Thr Gly Trp Arg Val Cys Ile Asp His Arg Arg Leu Asn
     50                  55                  60

Thr Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
 65                  70                  75                  80

Leu Glu Arg Leu Ala Gly His Glu Tyr Tyr Cys Phe Leu Asp Gly Tyr
                 85                  90                  95
```

```
Ser Gly Tyr Asn Gln Ile Val Val Ala Pro Glu Asp Gln Glu Lys Thr
            100                 105                 110

Ala Phe Thr Cys Pro Tyr Gly Ile Phe Ala Tyr Arg Arg Met Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Thr Ser Ile
    130                 135                 140

Phe Ser Asp Met Leu Glu Lys Tyr Met Lys Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Phe Gly Ser Ser Phe Asp Asn Cys Leu Ala Asn Leu Ser Leu
                165                 170                 175

Val Leu Gln Arg Cys Gln Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
        195                 200                 205

His Lys Gly Ile Glu Val Asp Lys Ala Lys Val Glu Val Ile Ala Asn
    210                 215                 220

Leu Pro Pro Pro Val Asn Glu Lys Gly Ile Arg Ser Phe Leu Gly His
225                 230                 235                 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
                245                 250
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<210> 162
<211> 762
<212> DNA
<213> Pisum sativum

<400> 162
gtgcgtaagg aggtctttaa actattggat gcgggaatga tttacccgat ctcggatagt 60
ccgtgggtta gtcccgtgca cgtggttccg aagaagggtg gaatgaccgt aatccgtaat 120
gacaaagacg aattgatccc gactaaagtt gcaacggggt ggagaatatg tatagattat 180
agacagttga ataccgcgac tcgaaaggac cattttccac tcccatttat ggatcaaatg 240
cttgaaagac tatcgggcca acaatactat tgtttcttgg acggctactc cgggtacaac 300
caaattgcgg ttgacccggt tgatcatgag aagacggctt tcacgtgtcc gtttggagtg 360
ttcgcataca gaaaaatgcc ctttgggctg tgcaatgcac cggcgacttt ccaacgatgc 420
gtcctagcca tttttgccga tctaatagag aaaacaatgg acgtcttcat ggatgacttc 480
tcggtatttg gtgggacgtt tagtctatgc ttggcaaatt tgaagacggt gttggaaagg 540
tgtgtgaaga ccaatttggt gctaaattgg gaaaagtgtc acttcatggt gaccgagggg 600
atcgtgctag gccacaaagt ctctaaaagg gggcttgaag tggatagagc taaggttgaa 660
gtaattgaaa aattaccccc tccggtgaat gtgaaaggca tccgtagctt tttggggcac 720
gcggggtttt accggcgctt cattaaagac ttctcaaaag tt   762

<210> 163
<211> 254
<212> PRT
<213> Pisum sativum

<400> 163
Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Met Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Pro Trp Val Ser Pro Val His Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Ile Arg Asn Asp Lys Asp Glu Leu Ile Pro Thr
35 40 45

Lys Val Ala Thr Gly Trp Arg Ile Cys Ile Asp Tyr Arg Gln Leu Asn
50 55 60

Thr Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Gly Gln Gln Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Val Asp His Glu Lys Thr
100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Lys Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Val Leu Ala Ile
130 135 140

Phe Ala Asp Leu Ile Glu Lys Thr Met Asp Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Gly Thr Phe Ser Leu Cys Leu Ala Asn Leu Lys Thr
165 170 175

Val Leu Glu Arg Cys Val Lys Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Thr Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Lys Arg Gly Leu Glu Val Asp Arg Ala Lys Val Glu Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Val Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Ser Lys Val
245 250

<210> 164
<211> 762
<212> DNA
<213> Pisum sativum

<400> 164

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gtgcggaagg aggtctttaa attgttggat gcggggatga tttacccgat ctcggatagt 60
ccatgggtta gtcctgtgca cgttgttccg aagaaggggg ggattaccgt aatccggaat 120
gacaaggatg aattgatccc cactaaagtt gaaacggggt ggagaatgtg tattgattat 180
aggcggttga ataccgcgac tcgaaaagac cattttccac tcccatttat ggatcaaatg 240
ctcgaaagac tatcgggcca acaatattat tgtttttttgg acggctactc cgggtacaac 300
caaattgcgg ttgacccggc cgatcatgag aagacggctt tcacatgtcc gtttggagtg 360
ttcgcatacc gaaaaatgcc ctttgggctg tgcaatgcac cggcgacctt ccaacgatgt 420
gtccaagcca tttttgtcga tctgatagag aaaacaatgg aagtcttcat ggatgacttc 480
tcggtatttg gtgggtcttt tagtctatgc ttggcgaact tgaaaacggt gttggagaga 540
tgtgtgaaga ccaatttggt gcttaattgg gagaagtgtc acttcatggt gaccgagggg 600
atcgtgctag gccacaaagt ctctagaagg gggcttgaag tggatagagc taaggttgaa 660
gtgatagaaa aattacctcc tccggtgaat gtgaagggca tccgaagctt tttggggcac 720
gccgggttct accggcgctt cattaaagat ttcacaaagg tt                    762
```

<210> 165
<211> 254
<212> PRT
<213> Pisum sativum

<400> 165

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Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Met Ile Tyr Pro
  1               5                  10                  15

Ile Ser Asp Ser Pro Trp Val Ser Pro Val His Val Val Pro Lys Lys
             20                  25                  30

Gly Gly Ile Thr Val Ile Arg Asn Asp Lys Asp Glu Leu Ile Pro Thr
         35                  40                  45

Lys Val Glu Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Arg Leu Asn
     50                  55                  60

Thr Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
 65                  70                  75                  80

Leu Glu Arg Leu Ser Gly Gln Gln Tyr Tyr Cys Phe Leu Asp Gly Tyr
                 85                  90                  95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Ala Asp His Glu Lys Thr
            100                 105                 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Lys Met Pro Phe
        115                 120                 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Val Gln Ala Ile
    130                 135                 140

Phe Val Asp Leu Ile Glu Lys Thr Met Glu Val Phe Met Asp Asp Phe
145                 150                 155                 160

Ser Val Phe Gly Gly Ser Phe Ser Leu Cys Leu Ala Asn Leu Lys Thr
                165                 170                 175

Val Leu Glu Arg Cys Val Lys Thr Asn Leu Val Leu Asn Trp Glu Lys
            180                 185                 190
```

Cys His Phe Met Val Thr Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Arg Arg Gly Leu Glu Val Asp Arg Ala Lys Val Glu Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Val Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 166
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetically generated

<221> misc_feature
<222> 6, 15, 16, 18
<223> n = A,T,C or G

<400> 166
gtgcgnaarg argtnntnaa ryt 23

<210> 167
<211> 8
<212> PRT
<213> Consensus sequence

<400> 167
Val Arg Lys Glu Val Leu Lys Leu
1 5

<210> 168
<211> 24
<212> DNA
<213> Artificial Sequence

B4 cont

<220>
<223> Synthetically generated

<221> misc_feature
<222> 7
<223> n = A,T,C or G

<400> 168
aacyttngwr aartcyttda traa 24

<210> 169
<211> 8
<212> PRT
<213> Consensus sequence

<400> 169

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Val Lys Ser Phe Asp Lys Ile Phe
 1               5
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